MYRMECIA

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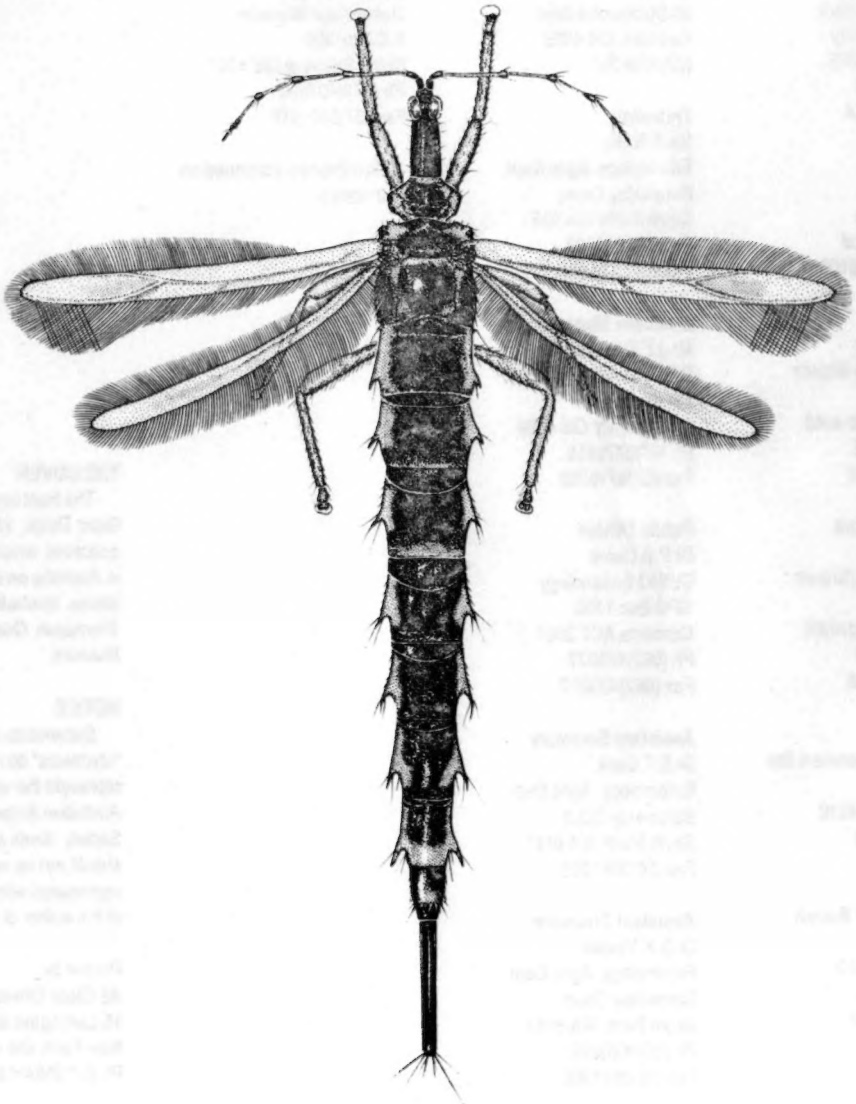

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(Office Bearers continued on rear cover)

THE COVER

The front cover shows the Giant Thrips, *Idolothrips spectrum*, which is widespread in Australia on dead eucalypt leaves. Illustration by Geoff Thompson, Queensland Museum.

NOTICE

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MYRMECIA

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Copy Deadline for Next Issue

Material for publication in the February 1990 issue of "Myrmecia" should be in the hands of the Editor, Geoff Monteith, at his address on the inside of the front cover by **Friday, January 27**. Fax transmission may be used to (07)8461918 but care should be taken to ensure legibility.

Editorial

In the August issue of MYRMECIA it was reported that several staff of CSIRO Entomology were short-listed for re-trenchment due to the financial climate. The focus of the attack was on systematic entomology because no less than three of those targeted were from the Australian National Insect Collection. We should spare a thought for those individuals because, although it is not explicitly stated in any of the news reports in this issue, their employment has now been permanently terminated. To help them into early retirement with a feeling of fulfilment, Dr Ted Henzell, Director of the CSIRO Institute within which Entomology falls, and principal arbiter in the retrenchment decision, went on public record in *The Australian* with the pronouncement that the retrenchments were to get rid of "trivial research".

A big chunk of CSIRO Entomology's prestige overseas derives from the remarkable book *Insects of Australia* and it is not widely appreciated in Australia how extensively it is used as a standard teaching textbook in Universities around the world. Though compiled largely by the taxonomists of ANIC it is foolish to think of it as a book of taxonomy..... it is a taxonomically arranged encyclopaedia of all information on an entire continent's insect fauna. But it is sobering to think that in the same month as the text for a completely revised, two-volume, new edition of *Insects of Australia* was delivered to the publisher, an edition which will undoubtedly soon be a second international triumph for Australian entomology, that three of its authors have been retrenched.

Clearly entomologists have a problem of communication with the upper bureaucracy. Let us hope that communication will be one of the areas addressed at the Workshop on **Insect Science: the Crisis in Education and Employment** being appropriately convened at Macquarie University by the Entomological Society of New South Wales on the eve of this MYRMECIA's issuance.

GEOFF MONTEITH
Myrmecia Editor

Myrmecia Advertising Rates

	Single Issue	Four issues (One Year)
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These rates apply to camera ready copy supplied by the advertiser. Where this is not supplied a small additional charge may be made for preparation of the layout. In addition, loose inserts supplied by the advertiser will be included for $50 per enclosure. These should be of a size which will not project beyond the pages of "Myrmecia".

Executive Quarterly Report

MEETINGS

The Executive met on August 17 and September 21, 1989.

MEMBERSHIP

The Executive accepted 10 nominations for membership and elected 7 new members. The distribution of members is as follows:

QLD	173	WA	44
NSW	160	TAS	28
ACT	118	NT	14
VIC	99	O/S	57
SA	67	ADDRESS UNKNOWN	3

Membership by categories is:

Full	585	Honorary	6
Student	89	Joint	22
Retired	61	TOTAL	763

WHERE ARE THEY?

We have lost contact with the following members:

G. W. Cornell
T. R. Glare
N. Nikolakopoulas
A. J. Orian
W. A. Palmer
C. Satasook

Could anyone knowing their current addresses please advise either the Secretary or the Business Manager at their addresses inside the front cover.

NEW MEMBERS

WE WELCOME THE FOLLOWING NEW MEMBERS:
Elected August, 1989

Mr C. Goletsos, 28 Colin Street, Belmore, NSW 2192. Constantine is an honours student at the University of NSW studying aphidophagous coccinellids and the defence mechanisms of aphids.

Mr S.C. McNab, BSc (Agric.) (Hons), Department of Agriculture and Rural Affairs, Institute for Irrigation and Salinity Research, Ferguson Road, Private Bag, Tatura, VIC 3616. Stuart is a research scientist with interests in the Tetranychidae and Phytoseiidae and in integrated pest management.

Dr A.D. Marchant, BSc (Hons), PhD, Molecular and Population Genetics Group, Research School of Biological Sciences, ANU, Canberra, ACT 2601. Adam holds a post-doctoral position at ANU. His entomological interests have included population genetics in acridids, gall formation in the Homoptera and cell chemistry in *Peripatus*.

Dr P.J. Wright, BSc (Hons), PhD, Newtown Research Laboratories, St Johns Avenue, New Town, Hobart, TAS 7008. Paul is an insect pathologist with an interest in the evolution and zoogeography of entomopathogenic fungi and nematodes.

Elected September 21, 1989

Mr M. Gibian, BSc (Agric.), 240 Bridge Road, Glebe, NSW 2037. Michael is a development chemist with Samuel Taylor P/L. He is interested in invertebrate cave fauna.

Ms V. Mercer, 5 Tantallon Street, Mount Gravatt East, Brisbane, QLD 4122. Vanessa is studying for her B.App.Sci. and is interested in agricultural entomology.

Dr W. Tun-Lin, MB, BS (Rgn), DP & TM (Rgn), MSc MP (Lond). QIMR, Bramston Terrace, Herston, Brisbane, QLD 4006. Dr Tun-Lin is a Ph.D. student studying mosquito borne diseases and their vectors. He has worked as senior research officer with malaria and dengue vectors in Burma.

CHANGES OF ADDRESS OR TITLE

Mr A.J. Allwood, Department of Primary Industry and Fisheries, GPO Box 990, Darwin, NT 0801 (NT)

Mr S.C. Barker, Department of Parasitology, University of Queensland, St Lucia, QLD 4067 (ACT)

Mr Y.F. Bassett, 3 Ch. Chesnaie, 1219 Chatelaine, Geneve, Switzerland (QLD)

Dr J.H. Bryan, Department of Entomology, University of Queensland, St Lucia, QLD 4067 (correction)

Dr B.R. Champ, ACIAR, GPO Box 1571, Canberra, ACT 2601 (ACT)

Dr I.M. Cook, Biometry Branch Department of Primary Industry and Fisheries, PO Box 79, Berrimah, NT 0828 (NT)

Mr R.J. Corcoran, Entomology Branch DPI, Meiers Road, Indooroopilly, QLD 4068 (QLD)
Mr W.M. Doherty, 1/2 Bowen Court, Mackay, QLD 4740 (?)
Mr M.S. Durham, PO Box 21, St Leonards, TAS 7250 (SA)
Mr W.R. Farnsworth, PO Box 1348, Innisfail, QLD 4860 (NSW)
Mr T.L. Fenner, Agricultural Quarantine Service, Department of Primary Industry and Fisheries, PO Box 2268, Darwin, NT 0801 (NT)
Dr K. Gibb, 48 Tasman Circuit, Wagaman, NT 0810 (Postcode change)
Dr V. E. Harris, P.O.Box 8773, Atlanta, Georgia 30306. USA (O/S)
Dr C.D. Hawkins (formerly Mr), MacMillan Bloedel Ltd, Woodlands Services Division, 65 Front Street, Nanaimo, BC, Canada, V9R 5H9 (O/S)
Ms A.R. Hill, Ministry of the Cabinet and Public Sector Management, 197 St George's Terrace, Perth, WA 6000 (WA)
Dr M.B. Malipatil, Entomology Section, Plant Research Institute, Swan Street, Burnley VIC 3121 (NT)
Dr D. Merritt, Department of Biological Sciences, SUNY Albany, Albany, New York 12222 USA (USA)
Mr M. Newton, 6 Hakea Crt, Bridgewater, SA 5155 (?)
Mr A. O'Toole, Plant Research Institute, Swan Street, Burnley, VIC 3121 (VIC)
Ms S. Permkam, Department of Entomology, University of Queensland, St Lucia, QLD 4067 (QLD)
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Mr P.I. Whelan, Medical Entomology Branch, Department of Health and Community Services, PO Box 41326, Casuarina, NT 0810 (NT)
Mr G. Young, 27 Boyce Street, Ryde, NSW 2112 (O/S)

FROM THE MINUTES

Public Officer

Phil Carne has suffered serious illness recently and is now convalescing at home. We wish him a rapid return to good health.

Change of Regional Councillor

Ms Danielle Heilpern has decided to step down from the Regional Councillor's position in NSW owing to a recent career change. The Executive has accepted Danielle's resignation with regret and wishes her every success for the future.

Ms Merilyn Geary has indicated that she would be willing to fill the casual vacancy until the next AGM. Merilyn is a technician in the Medical Entomology Unit at Westmead Hospital in Sydney's western suburbs. She works primarily with Ross River Virus and its vectors. Council members will be asked to ratify her appointment. (NOTE: Since preparation of this Executive Report a vote of Councillors has confirmed Merilyn's appointment as NSW Regional Councillor).

22nd Annual General Meeting

Northern Territory members have considered carefully the Executive's invitation to host the 22nd AGM in 1991. Regrettably there are not sufficient members in the Territory who can commit enough time to guarantee a successful meeting. Consequently, the Executive has invited the Regional Councillors in Victoria to host the 1991 meeting in that State, as agreed at the 37th Council Meeting in Sydney.

Biological Council of Australia

Dr Jane Wright will represent the Society at the inaugural meeting to discuss the formation of a Biological Council of Australia. This Council is to be formed under the auspices of the Federation of Australian Scientific and Technological Societies. The Council is intended to provide more specific representation for the biological sciences at the federal level.

Australian Entomological Society Research Grants

The Executive has received 7 submissions for the Society's inaugural research grants. The applications have been directed to a panel of referees selected by the President. The successful applicants will be notified in November this year. (See elsewhere in this issue of "Myrmecia").

INAUGURAL AWARD OF SOCIETY RESEARCH GRANTS

The Executive of the Society takes great pleasure in announcing the four successful applicants for the first round of research grants offered by the Society. They are as follows:

Mr I. Barrass (Victoria). Travel to study rearing techniques for encyrtid wasps. ($400)

Mr R.J. Kohout (Queensland). Travel and subsistence to study taxonomy of *Polyrhachis* ants. ($2400)

Mr M.S.Moulds (New South Wales). Artwork for cicada taxonomy. ($485)

Mr C.A.M.Reid (Australian Capital Territory). Fieldwork to collect chrysomelid beetles in Queensland. ($660)

The grants are for expenditure during the year 1990 and recipients are required to submit a written report suitable for publication in MYRMECIA or the Journal at the end of May 1991.

Application forms for the next round of research grants are included in this issue and should be completed and forwarded to the Secretary by February 12, 1990. Successful applicants will be announced in May 1990.

Regional News

VICTORIA

La Trobe University

Three globetrotting entomologists have now returned to base. Tim New participated in the IUCN Species Survival Commission meeting in Rome and the Royal Entomological Society Symposium on Insect Conservation in London. He also worked at the British Museum, on lacewings, for about 2 weeks. Ian Thornton presented a poster on 'Insects and Krakatau - a conserved habitat of long-term research interest' at the R.E.S. Symposium, and talked on the Krakatau project at Charles University, Prague and the Czechoslovak Academy of Sciences, Ceske Budejovice. Seamus Ward presented papers at the International Conference of Invertebrate Reproduction (Nagoya) and the 3rd International Conference on Aphids (Kecskenet, Hungary) and gave two other seminars in Japan. He visited colleagues in the Netherlands, France and England. Seamus' co-edited book 'Simulation of systems management in crop protection' and Tim's volume on Neuroptera in the 'Handbuch der Zoologie' series have recently appeared.

Several members of the Department of Zoology, Tim, Dieter Hochuli and several ecology students attended a meeting on Management and Conservation of small populations at the Melbourne Zoo.

Melbourne University, Genetics Department

Jon Martin was in Europe during September to attend a workshop on the Molecular Biology of Chironomidae in Switzerland and also to participate in the Second Congress of the European Society of Evolutionary Biology. He took the opportunity to visit laboratories in Switzerland and Germany where work on Chironomidae is in progress.

Monash University

Brian Roberts is heading off on his annual two month trip to Indonesia. Brian has previously taught at Bandung in Java, as part of the Eastern Asian Universities programme of the International Development Programme. This time he is off to Bali, to teach biological techniques at the Universitas Udayana, about 25 km south of Denpasar.

Mark Collier is doing some collaborative work with Mike

Schwarz at La Trobe Uni on native bee hormones. Dr Kathy Lefavre who completed her doctorate with De Ville at Wageningen, is doing post-doc work with Brian Roberts on juvenile hormones and ecdysteroids on *Lucilia*, in collaboration with Peter Smith at CSIRO.

Plant Research Institute, Burnley

In early September, Mali Malipatil was welcomed as a new member of the staff at PRI as a Systematic Entomologist. As many will be aware, for the last ten years, Mali was Curator of Insects at the Northern Territory Museum in Darwin. Courtesy of the airline industrial dispute Mali enjoyed a brief stop-over in Bali on his tortuous route to Melbourne.

Also in early September Mark Smith attended the 2nd International Symposium on Bruchids and Legumes in Okayama, Japan, where he presented a paper on crop loss and its implications for crop management.

Paul and Janet Horne are presently in Kenya and it is believed that a very large mountain may suffer their onslaught.

Museum of Victoria

The name change saga continues. The Environmental Records Department (once Biological Survey) has been renamed Invertebrate Survey. This name finally reflects the true role of the department.

The Survey Department is conducting a survey of the invertebrate fauna of the proposed Eastern Freeway extension and the Ringwood bypass road. This project is being funded by the Department of Conservation, Forests and Lands. This foray into "urban ecology" has been an eye-opener for Cathy Ebert, Peter Lillywhite, Patrick Vaughan and Alan Yen, especially the influence on diversity (e.g. of psyllids) of planting native plants from other regions. David Crosby is also being employed to survey the butterflies of the area.

Peter Lillywhite and Alan Yen spent a pleasant few days digging in 450 large pitfall traps near Bendigo to look at the effect of gold-mining and eucalypt oil harvesting on the fauna. In the week following trap establishment, the study sites were subject to visits by the drug squad, the police helicopter ....

Patrick Vaughan, Beverley Van Praagh and Alan Yen attended the small population conservation and management conference at the Zoo in September. Alan presented a paper on invertebrate conservation on behalf of Pat, Beverley and Tim New.

Alan Yen is relieved that the book he wrote in conjunction with Mark Harvey has finally appeared. It is entitled "Worms to Wasps", and is an illustrated guide to the orders of terrestrial invertebrates found in Australia.

Leon Barmuta has joined the Survey Department as an exempt employee. Leon will be working on the stream communities project with Richard Marchant. Leon and Richard are giving talks at La Trobe University as part of a wetlands seminar series.

The Flora and Fauna Guarantee Act was passed by Parliament last year and is waiting for the regulations to be put in place before it is fully operative. Meanwhile, the Scientific Advisory Committee, of which Alan Yen is a member, is considering nominations for listing. So far, three invertebrates have been provisionally listed: *Ogyris otanes* (Small Brown Azure Butterfly), *Myrmecia* sp. 17 (ANIC), and *Thaumatoperla flaveola* (an alpine stonefly).

Keith Turnbull Research Institute

David McLaren was pleased to hear that his Ph.D. on 'Insect Damage to Young Plantation Grown Eucalypts in Mt. Gambier, South Australia, with Particular Reference to Selected Lepidoptera' has been passed.

Ross Field is away on long service leave until mid January. He and his family are driving around Australia and it is expected that butterfly colonies on their route will be severely depleted as a consequence!

Ros Shepherd is on recreation leave in Western Australia, helping a South African entomologist collect gall forming wasps (*Trichologaster* spp.) for biological control of Acacias in South Africa.

Robin Adair has completed host specificity tests on *Chrysolina progressa*, a leaf feeding beetle for control of Boneseed and Bitu Bush. The first release of this insect will be made at Studley Park on the 28th of October, 1989.

Tom Morley has been appointed as a technical officer to work on biological control of Paterson's Curse, and Robin Mares has been employed as a technical assistant to work on the biological control of Boneseed.

Chisholm Institute of Technology

Ian Campbell is working on the proceedings of the Mayfly and Stonefly Conference held at Marysville last February. He is also working on the taxonomy and life histories of tropical mayflies and has at least three new *Jappa* species.

Paul Bailey is writing up his work on *Ranatra*, and is studying the colonisation of leaves in streams in the Marysville area. Tony Sharley of the River Murray Commission is doing a Masters on insect emergence from water bodies in the Northern Territory.

Rural Water Commission

The State Water Laboratory of Victoria has a small group of biologists undertaking a variety of studies on freshwater macroinvertebrates for various governmental agencies.

Vincent Pettigrove is currently trying to determine whether or not biocides used in tobacco farming have an impact on the morphology of selected chironomid taxa from the Ovens and King Rivers. It is hoped that the incidence and severity of deformities in chironomids from these rivers will prove to be a useful indicator of toxic contamination. Garry Bennison and Bob Morley are involved in two monitoring programmes of macroinvertebrate communities, one on the River Murray and the other on the streams of Mt Stirling. Leon Metzeling is currently reviewing macroinvertebrate data he has collected from monitoring programmes on the Werribee, Maribyrnong and Wimmera Rivers. Phil Mitchell (formerly at the Museum of Victoria) has recently been appointed to continue a study on the impact of the Dartmouth Reservoir on the Macroinvertebrate communities of the Mitta Mitta River. He replaces Julia Reed who has taken up a position with the Department of Conservation, Forests and Lands.

Murray-Darling Freshwater Research Centre

The macroinvertebrate ecology group will be running another taxonomic workshop on the week 12-16th February 1990. The workshop will be on the Preparation and Taxonomy of Chironomidae (Diptera) Larvae and Pupae with Peter Cranston being the key speaker. This follows on from a successful workshop in February this year which covered Aquatic Acarina Taxonomy and Ephemeroptera Taxonomy where papers were delivered by Mark Harvey, Ian Campbell, John Dean and Phil Suter.

Unattached

Don Ewart recently visited Professor Tamashiro Minoru at the University of Hawaii and looked at his work on *Coptotermes formosanus*. Don then attended a termite conference in Oregon where he delivered two papers. He also gave a talk at the University of Ecology.

PAT VAUGHAN
Regional Councillor

TASMANIA

Department of Primary Industry

With the recent change of government in Tasmania the state's biggest employer of entomologists (6) is no longer the Department of Agriculture but now Department of Primary Industry. Peter McQuillan with the help of the Wool Research Trust Fund has gained an assistant, Wendy Frazer, to work on red-headed pasture cockchafer population dynamics for three years.

Hobart Technical College

Laurie Miller has been promoted to head of the Department of Horticulture. He has recently completed running five courses for 120 participants on pesticides. Laurie reports that Jim Ward ex head of Bayer Technical Division is now semi-retired in Hobart and doing consulting work in the agricultural chemicals area.

Department of Environment and Planning

This Department has also undergone nomenclatural changes recently being Lands, Parks and Wildlife which absorbed the National Parks and Wildlife Service. Robin Coy recently moved from postgraduate work at Monash University to become project officer on the Rainforest Invertebrate Conservation project. Robin has employed an assistant to help with sorting specimens and reports that invertebrates are beginning to enter the psyche of environment planners here.

Unattached

Michael Fletcher maintains an interest in Tasmanian Lepidoptera but has been mostly preoccupied doing plant

illustrations for a herbal book by his wife Kim. George and Jenny Ettershank have completed construction of their home at Murdunna and are seeking consultancy work in entomology and computing.

LIONEL HILL
Regional Councillor

QUEENSLAND
SOUTH EAST QUEENSLAND

Griffith University

Yves Bassett submitted his PhD thesis on his rainforest canopy insect sampling work at Mt Glorious in September and headed home to Switzerland. Madagascar is on the short list for his immediate future.

Lands Department, Alan Fletcher Research Station

Jennifer Marohasy left for Kenya in September for a 3 year project on the biocontrol of prickly acacia. Dr Mark Alfonso from the CAB visited the Lands Department to discuss the economic impact of damage by the *Leucaena* psyllid.

Queensland Institute of Medical Research

Ian Fanning was on Darnley and Thursday Islands in the Torres Strait till Oct. 20 talking with local authorities and the Island Councils about the release of *Mesocyclops darwini*. This copepod is useful for controlling various *Aedes* mosquitoes, and hopefully, reducing the incidence of Dengue.

The QIMR and the CSIRO Division of Tropical Animal Production co-convened the Fifth Australian Arbovirus Symposium between Aug 28-Sept 1. Despite the airstrike, 171 participants from 20 countries fronted up in Brisbane for what many thought was a raging success. A significant proportion of the 103 papers dealt with aspects of vector biology and control. This and the convivial atmosphere at the Australian Woolshed on the last night was more than enough to keep attending Entomologists happy!.

Brian Kay flew to Geneva to attend the WHO/FAO/UNEP Joint Panel of Experts on Environmental Management for Vector Control between Sept 11-16. The panel discussed health guidelines and environmental considerations for multilateral and bilateral agencies and international banks planning water resource development projects.

University of Queensland, Entomology Department

Gimme Walter was in Thailand in August to talk to Dr Anachit Chinajariyawong (an ex student in the department) about borers in tropical fruit trees. Meanwhile Joan Bryan was busy visiting Vanuatu and PNG under a WHO consultantship on malaria control. Dr Michael Ghiselin and Dr Terry Gosliner from the California Academy of Sciences, Golden Gate, San Francisco visited the department recently. They held a seminar on species as individuals which generated a very lively and profitable debate. Also visiting the department was Prof. Shao Shi Zhang from Ninjing Agricultural University. Margaret Evans was recently awarded a PhD for her thesis entitled "Ecology and management of selected phytophagous arthropod species in soybean crops in SE Qld with special reference to *Heliothis armigera* (Hubner)". Well done Margaret!

Queensland Museum

Our arachnologists returned from the International Congress of Arachnology in Turku, Finland, with the exciting news that they have secured the next Congress for Brisbane in 1992 where it will be convened at the Queensland Museum. This will be the 12th Congress and the first to be held out of the northern hemisphere. A local organising group of Robert Raven, Val Davies, Jane Rienks and Judy Grimshaw has had a preliminary meeting.

Congratulations to Val Davies who was elected to a 3-year term as Vice-President of the Paris-based Centre International de Documentation Arachnologique during the Turku Congress.

A film crew from the English "Genesis" documentary organization arrived in Brisbane in October for two months after spending time filming ant-plants with Matthew Jebb at the Christensen Institute in Papua New Guinea. On their shopping list for South Queensland were the behaviour of the curious leaf-feeding *Cephalodesmius* dung beetles, for which Geoff Monteith took them to his old study area at Tooloom Scrub, and trophic egg production in *Myrmecia*, for which Gudrun Sarnes led them on an exciting nest-excavation at Stanthorpe.

Peripatetic peripatologist, Hilke Ruhberg, from Hamburg,

visited Robert Raven for a few days during which they visited O'Reilly's Guest House at Lamington in search of *Peripatus*. She failed to convince David Attenborough, who just happened to be in residence, that *Peripatus* were as worthy of his film's crew attention as the bower birds they were working with. Consequently Geoff Monteith, visiting the same weekend with Austrian aradid specialist, Ernst Heiss, decided not to push the international documentary qualities of the Aradidae which have the filmic properties of a sedentary pebble! Hilke moved on to more field work in Tasmania, while Ernst travelled on to New Zealand and Fiji.

In October Ray McInnes drove 50 drawers of QM weevils back to Brisbane from Canberra where they have been attracting E.C. Zimmerman's attention in recent years. To make it an entomological round-trip Ray took on 40 bee-hives at Toowoomba for CSIRO Canberra's new apiary projects.

Other visitors have included Professor Charles O'Brien and his wife Lois from Florida A&M University. Charles is a weevil specialist looking at taxonomic problems involved with biocontrol species for both aquatic weeds and *Melaleuca*. Lois is working with the Fulgoridae and has a book on the spectacular "lantern flies" in process. Nicolas Degallier, from Belem in Brazil, called to see our myrmecophilous Histeriae as a diversion from his attendance as a medical entomologist at the arbovirus conference.

Jamie Seymour from James Cook University, called in to discuss the coming ANZSES Expedition to the mountains behind Mossman. He is to be Insect Group Leader. Geoff Monteith (Entomology Project Director) and Geoff Thompson will take part in the opening stages of the Expedition which runs from mid-December to mid-January.

DES FOLEY
Regional Councillor

DPI Entomology Branch

The review of *Heliothis* research in Australia which has been initiated by several of the Rural Industry Research Councils has had to be postponed due to problems associated with the airline strike. It is hoped that the review can be rescheduled before Christmas.

Brad Scholz had an impressive display of egg parasites of *Heliothis* at the recent Farmfest display in Toowoomba.

The Entomology Branch of QDPI held a very informative seminar on "Integrated Pest Management - The Gap Between Theory and Practice" recently. It attracted people with a wide range of interests and some invaluable discussion followed.

The HRDC funded project to introduce Integrated Mite Control into the apple orchids of the Granite Belt is now under way. A team approach has been taken with officers from several QDPI disciplines, (viz. horticulture, plant pathology, economic services, biometry, extension services and marketing) becoming involved, in addition to the entomologists. A professional scout has been chosen and this appointment is further supported by 20 growers who have committed funds to the project for the 1988/89 season. With the prospect of a hot dry summer ahead, the project leader, Frank Page, is hopeful that the predatory mites will take control of the twospotted demons.

Tang Zhi, a quarantine research entomologist from Beijing is spending a year with Neil Heather on disinfestation. He will be working with lychee.

Yang Shaojun, a regulatory quarantine entomologist from Tianjing is spending a year with John Turner on quarantine entomology.

Penny Gullan is leaving us after a short sabbatical with the taxonomists at DPI, Indooroopilly.

Queensland Agricultural College

Errol Hassan was recently promoted to the position of Senior Lecturer. Errol acted as a consultant to the UNDP in the Maldives from September 8 to October 9, conducting insect surveys on different atolls. Maldives is currently trying to establish a Horticultural industry, which at present is in the form of backyard gardens.

Dr R.A. Stephenson, Senior Horticulturalist, visited Errol and had discussions on ornamental pests.

In the spirit of smooth consolidation, members of the QAC Plant Protection Section and Entomology Department of UQ have been interacting socially (in the form of BBQs) to get to know each other.

Bureau of Sugar Experiment Stations

Peter Allsopp takes off for the Torres Strait on 29 October for two weeks. He will be carrying out a quarantine survey for sugarcane pests and diseases on all inhabited and some uninhabited islands. Also on the expedition will be John Turner, QDPI Indooroopilly, and various other DPI

staff, Peter already has orders for butterflies and dung beetles!

The proceedings of the soil-invertebrate workshop held last April in Brisbane have been published by QDPI. All participants should have received a copy but a few extra copies are available from Les Robertson, DPI Emerald or Peter Allsopp, BSES Bundaberg.

IPM - Mundubbera

In early October David James from Yanco Ag Institute joined Dan Smith and Dan Papacek in Mundubbera to collect Spined Citrus Bug. After extensive searches in native *Eremocitrus* and commercial lemon blocks, they were finally able to locate a small population. This season they will be attempting to collect SCB eggs from the Central Burnett to send parasites to David.

A film crew recently spent two days in Mundubbera producing a video on IPM in citrus. The video was organised by the DPI through the efforts of Elaine Brough and Ian Galloway. Bryan Cantrell was to supervise the shoot.

Anthony Mick, who is finishing an Ag Science Entomology major at UQ, is joining Integrated Pest Management to manage the 'Bugs for Bugs' insectary which is housed in the old Butter Factory at Mundubbera.

PETER TWINE
Regional Councillor

NORTH QUEENSLAND NEWS

DPI Entomology Branch

Geoff Waite (Nambour DPI) and Harry Fay (Mareeba DPI) both attended the 2nd National Lychee Seminar in Cairns, giving talks on entomological aspects of the crop.

Ian Cunningham (Mareeba DPI) and Neil Heather (Indooroopilly DPI) attended the 3rd International Mango Symposium held in Darwin. Neil spent time in Mareeba with mango growers on his way back to Brisbane.

Merv Bengston (Director of Queensland DPI) and Ian Galloway (Principle Scientist Queensland DPI) spent several days in Mareeba, Innisfail, and Ayr in mid-October, discussing current projects and future directions with local entomology branch officers.

Lands Department, Tropical Weeds Research Centre

Sida and *Parkinsonia* weeds in northern Queensland BEWARE! TWRC recently commenced mass-rearing colonies of two insect species for the biological control of these exotic weeds. The Northern Territory Department of Industries and Development funded the host-specificity testing of the Mexican leaf-feeding chrysomelid *Calligrapha pantherina* to *Sida acuta*, *S. rhombifolia* and *S. spinosa* by CSIRO (Indooroopilly). This voracious, metallic beetle will soon be chomping through the weedy *Sida*'s in northern Queensland.

The other new resident at TWRC is a tiny mirid bug *Rhinacloa callicrates* attacking *Parkinsonia*. The introduction and testing of this insect was funded by the West Australian, Northern Territory and Queensland governments.

Allan Tomley (Alan Fletcher Research Station) and Marie Ablin addressed a successful graziers forum on rubber vine biological control progress, which was held in conjunction with an Open Day at TWRC on October 11th. The Minister for Land Management, the Hon. N.L. Harper opened the forum.

ROSS STOREY
Regional Councillor

WESTERN AUSTRALIA

WA Museum

The "Jewels of the Rainforest" exhibition, which was organized by Terry Houston and his crew, started on 1 September. It was launched with a fashion parade by some leading designers. The exhibition, which involved mainly butterflies, has been a great success with around 16,000 visitors in the first month.

Dr Ed Ross, curator emeritus at the California Academy of Sciences, visited the museum in September for a period of three weeks to collect specimens of the little-known web-spinners (Embioptera). Dr Ross, well known for his contribution to the "The Insects of Australia" brought live cultures with him from SE Asia, where he had just completed a collecting trip. Dr Ross collected in the southern half of WA and located 1 new species. He also presented a seminar at the museum, where he talked about and showed slides of his many collecting trips in many parts of the world.

Among all this, Terry managed to escape for three weeks to go on an insect-free holiday in East Africa.

Curtin University

Jonathan Majer is still travelling through, what is left of, the Brazilian jungles. He will be presenting a paper on 'Argentine ant control in WA', at the 3rd international colloquium on pest ants. According to his letters he is enjoying himself immensely and is now able to have a 3 hr conversation in Portugese with the locals.

Agriculture Protection Board

Peter Davis and John van Schagen have now established some 50 laboratory colonies of Argentine ants to use for experiments with baits. The colonies are kept alive in specially designed artificial nests and fed solutions of sugar and a range of proteins. Judging by the number of public enquiries, Argentine ants are already causing a nuisance this early in the season. John recently received a Master of Applied Science degree from Curtin University.

Department of Agriculture

The Queensland fruit fly irradiation programme is well on the way now, in conjunction with the Agriculture Protection Board. The programme runs on a budget of 5 million dollars, employing almost 200 people using 70 vehicles. David Yeates and Kingsley Fisher have been busy with monitoring and setting up a breeding programme for sterile male release, while once retired entomologist Andy Sproul was called in to monitor fruit infestation. Caneite blocks impregnated with 'cuelure' and malathion have been placed in 'hot spots' within the infestation and weekly bait spraying, using a yeast autolysate/malathion solution, has been underway for about a month now over the entire infested area. Sterile male release will begin in February 1990.

Although "Q-fly" is a favourite topic at the entomology branch, there are some entomologists who managed to stay well clear from it. For instance, Rob Emery is expanding his entomological horizons by studying cockchafers. These scarabs have been causing extensive damage to wheat, barley and lupins in the central wheatbelt. Rob, with technical assistance from Justin McKindy, intends to use State Wheat Industry Research Council funds to identify the species, determine their life cycle and investigate chemical and cultural control strategies and factors affecting abundance. Reports from country branches indicate that Cockchafers are not the only insects attacking lupins. Kevin Walden from Geraldton reported that there have been extremely high levels of *Heliothis* present throughout agricultural areas. The moths emerged just when lupins were flowering. This caused a subsequent outbreak of more than 100 caterpillars per square metre. Kevin and his crew are now able to predict such outbreaks so chemical companies are now able to deliver large quantities of synthetic pyrethroids when necessary.

Down south, in Albany, Mike Grimm reported unusually high numbers of leaf curl plum aphids attacking a new lupin variety, called 'Yorrel'. The fact that these contain less alkaloids might have something to do with this.

Sue Harrington took over from John Sandow as entomologist in early September. She jumped in the deep end by going on a field trip to Geraldton, incidentally, to wind up John's aphid trapping program in lupins. She will now start investigating aphids in potato crops in the South West of WA. Sue comes from Murdoch University, where she used to work with Jenny Davis.

ICI

John Sandow says he is enjoying his new position as Senior Research Officer with ICI. He was hoping to attend a planning meeting in Mildura and catch up with his Victorian colleagues but the airline pilots had different ideas about that.

Department of Conservation and Land Management

Ian Abbott attended a conference "Population Dynamics of Forest Insects" in Edinburgh, Scotland where he presented a paper on "Insect outbreaks in forests of Western Australia". Ian participated in a post-conference tour and observed damage caused by the Winter Moth, Pine Beauty Moth and Larch Bird Moth on monocultures of introduced lodgepole pine/sitter spruce in Scotland. In WA, Autumn Gum Moths recently caused severe defoliation of Marri trees in the hills suburb of Lesmurdie, adjacent to state forest. The extent of the outbreak has been mapped.

Work on the effects of fire on invertebrates in wheatbelt reserves by Gordon Friend and David Mitchell culminated in a successful experimental burn on a small section of Durokoppin Nature Reserve in autumn. This reserve has also proven an important area for the cicindelid beetle

Nickerlea sloanei, previously known from only 7 specimens. Under the watchful eye of Graham Hall some 130 specimens have now been collected, all following late summer rain in 1988 and 1989. Similar fire effects and invertebrate community work has commenced in the Stirling Ranges National Park. This will be carried out in conjunction with small vertebrate and fire behaviour studies, and is funded by World Wildlife Australia for 3 years. Graham Hall has been employed on this project. Gordon's backlog of unsorted samples has now shrunk considerably due to efforts by Graham, Tony Postle and Leigh Whisson, who each spent a couple of months going through these samples.

Down in Manjimup, Stephen Dick has been appointed as Janet Farr's new Technical Officer, replacing Bill Frost who resigned for greener pastures in Burnley, Victoria. Dennis Haugen and Stephen Haskard from the Waite Institute (SA) will be visiting the South-West of WA in late October. They will release *Ips* parasitoids in the southern pine forests and will also be conducting a *Sirex* workshop at CALM headquarters in Como, WA.

CSIRO

Dr Brian Fletcher spent a week in August with the entomology group visiting field sites and discussing the 'soil insect pests of potatoes' project with James Ridsdill-Smith. James reports that the plant resistance group has spent much of the winter trying to develop methods for rearing red-legged earth mites. They had some success in that the mites have completed 1 generation in the laboratory, but there are some problems with high mortality occurring when young mites are handled.

Murdoch University

As mentioned, Sue Harrington has left the midge control team to work with the Department of Agriculture. Adrian Pinder has now taken over as project leader. Jenny Davis, Adrian and the team are carrying out field trials to investigate alternative methods to the pesticide 'Abate' for midge control.

University of Western Australia, Zoology Department

Visitors to the Department of Zoology UWA have included Professor Ron Aiken, Mount Allison University, New Brunswick, Dr Darryl Gwynne and Dr Leigh Simmons. Ron was here checking out the corixid and dytiscid fauna for further work in 1991. He has been a leading researcher in underwater acoustics and is now involved in dytiscid mating behaviour. WA offers rather easier working conditions to the lakes of NE Canada. Darryl and Leigh have carried out some novel experiments on the mating system of the strange, stick-like tettigoniids belonging to the sub-family Zaprochilinae. Leigh gained a Royal Society Grant to complete the work he started with Win Bailey in 1988.

Dr Heiner Romer (Ruhr University, Bochum) arrives with his family for six months to continue his collaborative researches on tettigoniid hearing. He brings to field biology the technology of neural recording.

The production of books has been the main fetish of the Department over the last year with the "Biology of the Tettigoniidae" given an expected publication date in March 1990 (Bailey & Rentz Eds, Crawford House Press). A book with substantial Australian content entitled "Insect Reproductive Behaviour: Individuals and Populations" (Bailey & Ridsdill-Smith (Eds) Chapman & Hall), and a book directed at insect acoustic behaviour entitled "The Acoustic Behaviour of Insects: an evolutionary perspective" (Bailey Chapman & Halls). These last two books should be on the shelf by mid 1990.

JOHN VAN SCHAGEN, on behalf
of Peter Davis
Regional Councillor

NEW SOUTH WALES
METROPOLITAN SYDNEY

Forestry Commission of NSW

David Spole recently transferred from BCRI and has replaced Gary Webb as Technical Officer. He will be responsible for the maintenance of the *Sirex* biological control programme. Darren Waterson has filled the second Technical Officer position at Pennant Hills. The new Forestry Commission insectary is well underway and should be completed in December.

Australian Museum

The Museum has received two large consignments of insects (more to come) comprising the alcoholic flight and malaise trap residues (minus Coleoptera) which Henry and

Anne Howden gathered on their six-month collecting trip around Australia. Geoff Holloway is supervising volunteers to sort out this material. These residues are particularly rich in Diptera and Hymenoptera. David McAlpine and Museum volunteer John Martin went on a collecting trip to the NSW South Coast and eastern Victoria in September and David was pleased to get another genus of Coelopidae in culture (more rotting seaweed!).

Visitors to the Entomology Department included Penny Greenslade, David Rentz and Jo Cardale, all from ANIC. Bob Taylor, ANIC and Kazuo Ogata from Kyushu University, Japan spent a day looking at ants; Eric Matthews from the South Australian Museum worked long hours for an entire week on the Museum's collections of Tenebrionidae; Nicolas de Gallier from Belem, Brazil looked at Histeridae; Risa Rosenberg, starting a postdoctoral fellowship on insect mating systems at the University of NSW, examined the butterfly collection; and Chris Reid, ANU, searched for new and little-known Chrysomelidae.

BCRI, Agriculture and Fisheries, Rydalmere

A few more faces have recently appeared among the staff of the BCRI Entomology Branch. Dr Victor Rajakulendran commenced working with Graham Baker on locusts and grasshoppers in mid September, while Martin Puddey and Tingkui Qin (having just completed his MSc at ANU) have recently joined the Taxonomy section.

Graham Brown was recently awarded a PhD for this thesis entitled "Systematics of the Australia Thynninae (Hymenoptera: Tiphiidae) with a revision of the genus *Rhagigaster* Guerin sensu Turner". Graham graduated from University of NSW on the 10th October; Congratulations Graham!

While on the note of achievement, Tammie Browning, a Australian Trainees Scheme Trainee Laboratory Assistant who worked in the Entomology Branch with Graham Baker, was selected as the NSW Trainee Laboratory Assistant of 1988. Congratulations to Tammie and best wishes for the future as she is now employed in medical research at Westmead Hospital.

Recent visitors to the BCRI include Warwick Wright, Australian Quarantine Inspection Service, Canberra, who visited Murray Fletcher on the 8th September to discuss matters associated with quarantine and biological control. Meanwhile, Vic Eastop's week long stay in mid September allowed him to examine aphidoid material in the collection.

Murray Fletcher has just returned from a brief visit, 8-11 October, to Lord Howe Island where he investigated the problem of caterpillars affecting the seed setting on Kentia palms. I suppose somebody must make the sacrifice; keep up the good work Murray!

Sydney University - Medical Entomology Unit at Westmead Hospital

Our unit has undergone a staff change, Bozea Kozlowski, who briefly replaced Danielle Heilpern as Research Assistant has been replaced by John Clancy. John is a graduate from the University of New England and is currently completing his Masters degree at the University of Technology.

Richard Russell and Peter Wells attended the 5th Australian Arbovirus Symposium at Brisbane in August where Richard presented three papers. Two Japanese delegates who attended the Symposium, Drs M. Mogi and T. Sota visited our Unit before leaving for Japan.

Peter has isolated several more arboviruses from inland mosquito samples and, with assistance from John, is now completing the final report of the 1988/89 Arbovirus Surveillance Programme for the NSW Health Department. Merilyn Geary has been kept busy by overhauling and distributing trapping equipment to the surveillance locations for the 1989/90 Programme. Richard with Michael Cloonan, Virologist from Prince Henry Hospital, visited the North Coast of NSW to review the placement of trap sites.

Merilyn and Richard are also involved in a collaborative electron microscopy study of mosquito eggs.

Centre for Entomological Research and Insecticide Technology

CERIT has had another busy quarter. Chris Orton and Chris Virgona have been fully occupied organising testing for Industry and with administration of the centre. Robin Gunning came to speak at CERIT about her Churchill Scholarship trip to Rothamstead. She was most enthusiastic and we look forward to new direction in her research on resistance in *Helicoverpa*. Merilyn Baker, nee Pierce was married to Eddie on September 9 and is now back at work at CERIT.

Jenny Anderson has spoken at 9 field days in different parts of New South Wales and Queensland trying to

convince sheep farmers to treat early to prevent blowfly strike. Hence she has hardly been inside CERIT doors and she hopes her family will remember who she is when she settles back at home. At Fowlers Gap, the new Technical Officer on the arid zone blowfly study is Robin Graham. He is replacing Lynette-McLeod, who has become the Australian Wool Corporation Scholar living at Fowlers Gap.

Visitors to CERIT include: Dr Alan Heath and David Cole from the New Zealand Ministry of Agriculture and Fisheries who came to discuss NZ blowfly problems, Peter Ingham, Textile Chemistry, WRONZ, discussed moth proofing and carpet beetle and Neil Wilson, Schering and Kerry Collien, Ciba Geigy inspected CERIT.

University of Sydney, Department of Plant Pathology and Agriculture Entomology

Mark Stevens has been awarded his PhD for work on the systematics of Australian Thymbrini (Homoptera : Cicadellidae).

David Sinclair has finally submitted his thesis and has been awarded his PhD for a cladistic, generic revision of the world Oncomeridae Stal N. Stat. and Tessaratomidae Shilling N. Stat. (Hemiptera : Pentatomoidea). David is now working for the State Government in the Department of Environment and Conservation, Queensland.

Army Malaria Research Unit

Tony Sweeney spent a month during August-September in the United States. While there he visited the Insects Affecting Man and Animals Laboratory, Gainesville, Florida, attending the Society for Invertebrate Pathology annual meeting at College Park, Maryland, and then visited colleagues at the Boyce Thompson Institute, Ithaca, New York, to continue his ongoing collaborative studies on mosquito parasites.

Stephen Doggett and Steve Frances attended the 5th Australian Arbovirus Symposium held in Brisbane. During the conference Stephen Doggett presented a joint paper with Tony concerning their work with microsporidian parasites of mosquito vectors. Following the conference two Japanese entomologists, Drs Moto Mogi and Teigi Sota, visited the unit at Ingleburn, before returning home. Another overseas visitor to the unit was Dr Jeffrey Hii, formerly working in Sabah, Malaysia, who spent a few days in the unit in August prior to travelling to Madang, PNG, to commence work at Maprik.

After a short stay at the unit, Darren Waterson left to take up a position at the NSW Forestry Commission.

Macquarie University, School of Biological Sciences

The full complement of insect people is now back at Macquarie, and Andy Beattie has been elevated to the unenviable position of Head of School. At the traditional 'Passing of the Buck' ceremony, Jan Gebicki handed over the trappings of office (the Grecian 100, the box of tissues for soothing distraught staff, a small bottle of "medicinal purposes only", the English-Maltese dictionary to facilitate communication with the Head of School's secretary etc. etc.). Andy then gave us an indication of his true nature by flashing his aposematic colouring - an amazing pink and black T-shirt. The possible significance of this is open to varying interpretations.

Now for science. Dick Frankham, Hatch Stokes, Sybille Hunt and Mark Graham have made an anti-sense white gene - hsp 70 promoter construct in a P element vector and successfully inserted it into *Drosophila*, with the assistance of Marion Healy of CSIRO Division of Entomology. The four independent transformants all produce anti-sense RNA, but heat-shocked progeny have normal red eyes. Pigment concentrations are currently being measured by Honours student Marc Wilkins.

Andy Beattie's ant group is busy as ever - while away, Andy gave the keynote address at the Ant-Plant Interaction meeting at Oxford on 'Crystal Gazing in Ant-Plant Research' and spent his OSP at the University of Newcastle-Upon-Tyne, and at his old stamping ground, the Rocky Mountain biological Laboratory in Colorado, studying ant pollination.

Dr Hall Cushman has arrived from Arizona to take up a Macquarie University Research Fellowship studying ant demography and variability in ant-plant interactions.

Rod Peakall is out in the field after discovering another ant-pollinated orchid, and back in the lab Craig Angus is making interesting discoveries about structure and function of Aussie ant metapleural glands.

The ant antibiotic work has been written up in Ecos, Australian Natural History and Natural History (New York). Andy is now negotiating with pharmaceutical companies for the commercial development of these discoveries.

Apologies to Steve Handel - in the last issue we had him returning to the wrong part of the USA. Should have been New Jersey.

Life among aphids is limited for Dinah Hales at present by teaching - Biology of Insects to internal and external undergraduates, honours seminar series on Biological Control and assorted postgraduate students' topics, with the major postgraduate conference coming up in the week after teaching ends. But Eren Turak, Lilian Blanco and Dianne Morris are keeping the ball rolling. If you can lay your hands on any live *Sitobion* or *Rhopalosiphum* on grasses or cereals and send them to us, we'd be most grateful. The seasonal and geographic distribution of our four 'genotypes' of *Sitobion* and x species/genotypes of *Rhopalosiphum* remain a mystery. Help!

Congratulations to Narelle Sales, whose MSc thesis is now in the hands of the examiners.

Dan Bickel and Merilyn Geary
Regional Councillors

NSW COUNTRY NEWS

University of New England

If there's anyone at home (entomologically) at UNE we'd love to hear. Drop us a line sometime.(Ed.)

NSW Agriculture and Fisheries, Agricultural Research and Veterinary Centre, Orange

Col Bower and Graham Thwaite organised a workshop for commercial pest managers held at Batlow in southern New South Wales. The Horticultural Research and Development Corporation-sponsored workshop brought together pome fruit entomologists and newly appointed pest managers from Stanthorpe, Queensland (led by Frank Page), Hawkaid at Richmond (Rob Spooner-Hart) and Orange. Batlow was chosen as a venue because of the success of the scheme operated through the Batlow Fruit Co-operative by Rob McLeod. The Orange, Stanthorpe and Bilpin/Camden services are modelled on the Batlow example.

NSW Agriculture and Fisheries, Yanco Agricultural Institute

Jennifer Whitney, formerly of the Forestry Commission in Sydney, joined the Yanco entomological team in September as a Technical Officer working on a new project investigating the possibilities of biological control of bunch and blister mites on grapevines. This project, under the direction of David James, is funded by the Wine and Grape and Dried Fruits Research Councils.

Renay Rogers also commenced duties at Yanco as an assistant working with David James on integrated control of Spined Citrus Bug.

Wendy Milne of CSIRO Division of Entomology visited the Section in September, collecting information on the occurrence of cereal aphids in southern New South Wales.

Graham Goodyer, Vic Edge and Royce Holtkamp were also visitors to Yanco during September to discuss subjects as varied as *Helicoverpa*, earth mites and Spined Citrus Bug. David James and Mark Stevens presented lectures to students from Charles Sturt University, who visited Yanco to hear the latest on entomological research in southern New South Wales.

John Hosking, of the Agricultural Institute at Tamworth, visited in September to discuss the pending transfer of a technical officer to Yanco to work on biological control of Paterson's Curse. This position will involve the distribution and monitoring of control agents in southern New South Wales.

David James spent a week during early October in the citrus growing districts of Queensland, examining pest management tactics, particularly with regard to Spined Citrus Bug. He visited Dan Papacek at Mundubbera and Dan Smith at Nambour, who were extremely helpful in explaining the intricacies of protecting citrus in the Sunshine State.

Mark Stevens visited CSIRO Division of Entomology in Canberra to discuss chironomid biology with Don Colless and Peter Cranston. He also caught up with Robin Bedding to discuss the possibilities of using entomopathogenic nematodes in rice pest management.

NSW Agriculture and Fisheries, Tamworth Agricultural Research Centre

Robyn Gunning returned in mid-August from her Churchill Fellowship-sponsored visit to Rothamstead in the UK, investigating techniques of biochemical toxicology in *Helicoverpa*, Robyn gave a seminar in September at CERIT (University of New South Wales) which expanded on her Rothamstead studies At the end of her Rothamstead stint Robyn gave her own biochemical mechanisms a good workout by spending an undetermined number of weeks

touring the vineyards of France and Guinness outlets of Ireland!

In September Professor Danthanarayana visited with a group of third year zoology students from the University of New England in Armidale. They were treated to presentations on current entomological research being conducted at Tamworth.

NSW Agriculture and Fisheries, North Coast Agricultural Institute, Wollongbar

Neil Treverrow attended the Australian Banana Workshop in July at Innisfail, and presented a paper on aspects of Banana Weevil Borer control.

DAVID JAMES
Regional Councillor

AUSTRALIAN CAPITAL TERRITORY

CSIRO Division of Entomology

Our globe-trotting Chief, Max Whitten, visited Cape Town in September to speak with John Scott who is working there on biological control of *Emex australis* and *Chrysanthemoides monilifera*. He then travelled to Montpelier, France, for continuing negotiations on the purchase of land for a CSIRO laboratory that will concentrate on the biological control of weeds, snails and aphids and transferring Australian technology in these areas to Europe. The USDA will be joining us in this venture, and the French government will also construct a facility in Montpelier, thus creating an important, international, scientific centre. Barry Jones is expected to visit Montpelier in December to sign the agreement with the French government for the development of the facilities.

As Secretary of the International Congresses of Entomology, Max Whitten was involved in meetings in Europe on the upcoming meeting, and confirms that the 1992 meeting will take place in Beijing. Without discounting the importance of recent events in China, he urges full support for the meeting, as it would be a disaster for international entomology and the International Congresses, if this meeting is not a success.

Some changes are coming at the Port Moresby screwworm fly facility in Papua New Guinea. Geoff Clark and Leane Regan are returning shortly to Canberra. Geoff has been seconded to the Australian Quarantine and Inspection Service for 3 months. Philip Spradbery will be replacing Geoff in Port Moresby temporarily.

The sheep blowfly group have been very busy, to say the least. They are now a month into the large 2 year field trial, releasing genetically altered blowflies on Flinders Island in Bass Strait. Geoff Foster and staff are flat out producing flies - the target is 7 million males per week. Rod Mahon and his crew on Flinders Island are doing the field releases.

David Cole and Allen Heath from MAFF Technical Services in New Zealand visited the blowfly group recently, to learn as much as possible about the system of producing the genetically altered flies. There are 4 major species of blow flies in New Zealand and there has been an increase in the incidence of flystrike since the appearance of *Lucilia cuprina* earlier this decade. They are evaluating the feasibility of an eradication program, and whether it would be sufficient to eradicate *L. cuprina*.

Roger Farrow, undaunted by his experiences in China, left Canberra again in July to go on safari to the game parks of Kenya and Tanzania before proceeding to Scotland where he attended the International Conference on Population Dynamics of Forest Insects.

Leigh Miller left for Alice Springs in late October to carry out a termite survey in the region in collaboration with the Division of Wildlife and Ecology. He plans to continue on to Darwin to do some further work on termite problems in cashew plantations. He will also be advising a BBC Natural History Film Crew led by Sir David Attenborough on the biology of magnetic and other termites for a series entitled "Trials of Life". Some staff believe that in the current economic climate, the film crews would get better footage for the topic if they visited the Division's headquarters in Canberra!

Les Readshaw travelled to the USA for 3 weeks in August to have discussions with researchers involved in IPM in orchards and hops and to see first-hand how their control procedures were carried out in the field.

Tony Watson spent seven weeks from July to September visiting laboratories in the UK and the USA working on termites and dragonflies. A major reason for the tip was to receive the Membership of Honour of the Societas Internationalis Odonatologica at the 10th International Symposium of Odonatology in the USA. This is a special honour as only

6 other scientists have received this award previously - congratulations Tony!

Robin Bedding will be presented with the Urrbrae Medal in Adelaide in late October. This is an annual award to a person who has made an outstanding contribution to Australian agriculture.

Doug Waterhouse and Dr Peter Kenmore (FAO) have been nominated as Australia's entry for the 1989 UNESCO Science Prize, for their IPM project in rice in southern Asia. Funded jointly by the Australian and Dutch governments, and administered by FAO, the project has involved a massive training program for the farmers, replacing a chemical technology with a knowledge technology. The result has been a major reduction in insecticide use, increased yields and the only effective IPM actually being implemented by the individual, resource-poor, small scale farmer anywhere in the world.

Dr Steven Buchmann, Carl Hayden Bee Research Centre, Tuscon, Arizona, has arrived for a 4 month visit to work with Delfosse on quantifying the pollen production of *Echium plantagineum* and *Heliotropium europaeum* and assessing the importance of these species in the annual pollen diet for managed and feral honeybees. They will also assess the importance of *Echium* as a nectar source for the bees.

Dr Matthew Greenstone, USDA, Missouri, paid a lightning visit to the Division in August to discuss his work on the development of monoclonal antibodies for species identification in *Heliothis* with Joanne Daly.

John Longworth, Director of DSIR/Plant Protection in New Zealand visited the Division recently and spoke to a number of the staff about their current research and areas of potential collaboration in the future.

On the financial side, while things are still grim, we do have a few glimmers of hope. The great support that CSIRO has received from all quarters is much appreciated and it is having an effect. As a result of the May statement, the Division has received extra funds targeted towards the reduction in pesticide use. Under this umbrella, research has expanded on the use of *Metarhizium* for control of soil insects, particularly termites and the use of pheromones for orchard moths. As well, money has been provided for the construction of a new electron microscope facility in Canberra, to be shared by the Divisions of Entomology, Plant Industry, Soils and Forestry.

The organising committee for next year's AGM in Canberra have been hard at work organising a terrific meeting, and the word from them is, "Be there, or be square!"

JANE WRIGHT
Regional Councillor

CSIRO Australian National Insect Collection

The plight of insect taxonomy has been getting on airing in some unusual places in the past two months. A rearguard action against the redundancies (see previous "Myrmecia") has resulted in House and Senate exposure through Mr McGauran (the opposition spokesman) in response to the Appropriation Bill and Senator Lewis's questions from the Senate Estimates Committee. Bruce Halliday and John Lawrence have spent much time and effort in elevating entomology into discussions concerning environmental issues at CSIRO and higher political levels. We have no idea on the outcome yet, but we are all grateful to all our supporters, especially to those who wrote protest letters - they have had influence.

On the brighter side, Ian Naumann's sterling efforts of the past months allowed him the privilege (?) of a drive to Melbourne bearing the bulk of the text and illustrations for the new *Insects of Australia*. The remainder is completed and will reach the printer imminently. All that remains is for Jo Cardale to collate the references, which, as with the rest of the text, will be delivered on discs in "Word" with print controls embedded. Thus publication may be rapid and timed to coincide with the July annual meeting of the Australian Entomological Society, but firm decisions cannot be made yet.

The combination of northern hemisphere summer and the pilots' strike has reduced the number of visitors. However, Don Edward (U of WA) made an arduous overland journey to work with Stuart Bunn and Angela Arthington (Griffith University) and Pete Cranston on a variety of streams in God's-own State and then to drain Fraser Island's Lake Boomanjin in a successful search for the enigmatic chironomid genus *Anaphrotaenia*. Don continued overland to Canberra for more chironomid work, then faced another overland journey to return to Perth - such stoicism for such dull little flies, eh?

Kazuo Ogada continues his ABRS-funded myrmeciine

studies, using DELTA and participating in the Coopers and Cladistics discussions. The readers of this column probably know more about the movements of Victor Eastop than we do - the pilots' strike doesn't appear to have deterred his continental scale perambulations. Visitors expected in the next weeks include Mick Shaeffer, microlepidopterist from the BMNH (now renamed with Pom arrogance THE Natural History Museum!) and Nina Wedell from Stockholm to study local katydids with Dave Rentz.

Dave Rentz returned from the Orthopterists' international meeting in Spain enthusing about the meeting but appalled by the atmospheric pollution that he found there and in California. Dave was promptly persuaded to breathe some fresh Canberran air and address the taxonomy discussion group on his Tanami and Lord Howe studies, and to explain his interactions with Don Colless and numerical and phylogenetic computer programmes. Andrew Calder is pumping elaterid data through PAUP, and as Don Colless observed after a talk by botanist Mike Crisp, there is no longer any requirement to justify taking a cladistic approach to taxonomic data analysis.

None-the-less, Coopers and Cladistics continues to provide well lubricated discussion on points mundane and esoteric associated with biogeography (why so few well worked Australian entomological examples ?) and molecular technicians (why is it so difficult to persuade the exponents that homoplasy is just as rampant in their data?). Bill Ballard, simuliid cytotaxonomist visiting from Brisbane, is excused from answering the latter rhetorical question. Ebbe Nielson should bring details of what the rest of the world's cladists have been doing at the Willi Hennig meeting at Cornell - I hope a lucid manual for Farris's Hennig 86 programme is amongst the goodies he brings back.

Australian National University

At ANU, with Penny Gullan absent collecting margarodids off *Araucaria* spp. and other SEQ native vegetation, things are very quiet, except for Chris Reid who (in return for allowing me a victory at tennis) can be described as working busily on his thesis or some similar coleopteran project. Tingkui finished writing his Masters thesis and disappeared (temporarily) to Sydney and Sunita Bhatti, now back in India before sampling the delights of winter in Edmonton, should hear the results of the PhD dissertation soon. Shelley Rozario continues to make microscope slides for Pete Cranston while seeking further studies after the success of her Masters submission.

NORTHERN TERRITORY

NT University - Science Faculty

Karen Gibb reports that she will be commencing work on aphid transmitted viruses in cucurbits during the next vegetable season.

CSIRO - Tropical Ecosystems Research Centre

Alan Andersen will be in Alice Springs from 14-19 October for filming of a CSIRO documentary ('The Silicon Imperative') on the Australian Environment. He will be talking about the ecological importance of invertebrates and their potential for use in biomonitoring programs.

Department of Primary Industry and Fisheries (DPIF)

DPIF, Agricultural Quarantine Section

Ted Fenner led a Friday afternoon seminar on the North Australian Quarantine Strategy at CSIRO, Darwin in August.

At the end of that month, he and Ian Taylor (Senior Quarantine Inspector, Darwin) joined two Coastwatch flights, one from the Queensland border to the Rose River (Southwestern Gulf) and the other to the NT/WA border area. The coast in both areas is desolate, comprising saline flats interrupted by occasional mangrove-dominated river mouths. Quarantine risk in such environments is apparently low.

From 24-29 September, Ted was a delegate to the 3rd International Mango Symposium in Darwin, which drew some 140 participants from over 20 countries. Points of quarantine interest highlighted in the final summing up included a plea for international standardisation of aspects of fruit fly disinfestation research (e.g. which stage(s) of the life cycle to test) and, on the disease side, that virtually nothing is known of viruses in mango.

Visitors included Dr Vic Eastop and, in their extra-curricular capacities, Peter Valentine (James Cook Uni, Townsville) and Charles McCubbin (Victoria). With each of the two latter fellow Lepidopterists, Ted was able to spend a few hours in the field.

DPIF, Entomology Section

Two new members have recently joined the Section. Jaye Layland has commenced work on insect problems in horticultural crops with initial studies on red-banded thrips in mango and cucumber moth in cucurbits. She has learnt a whole new range of phrases to describe the Top End during the build-up season. Wayne Houston who was previously working with Mali Malipatil at the Museum has been transferred to BARC along with his cashew insects project. Wayne will spend much of his time in the field at Wildman River.

Bob Sandary, newly appointed entomologist to the Wildman River cashew plantation visited the Section in September during his brief spell away from Gatton College. Bob will assume full time residence at Wildman in December.

Most members of the Section attended at least some sessions of the 3rd International Mango Symposium held in Darwin during September. Mike Neal organised a poster display on pests of NT mangoes and Stuart Smith presented a joint paper with Deanna Chin entitled "Hot water dipping as a disinfestation treatment against the fruit fly *Dacus aquilonis* (now *Bactrocera aquilonis*) in mangoes".

Fruit sampling during September indicated that the noxious strain of *B. aquilonis* previously confined to the Darwin urban and rural areas and Alice Springs township has spread to the Katherine area. This fruit fly was reared from both grapefruit and tomatoes.

DPIF, Weeds Section

The 'weedies' have been flat chat recently with the arrival of two new insects to rear and release. *Carmenta mimosa*, a sessiid moth that tunnels in mimosa stems, is proving contrary. It takes all of Leslie Hill's experience of candlelit dinners, mellow music and soft lighting to encourage them to mate. However, *Calligrapha pantherina*, a leaf beetle that tucks into Sida, needs no encouragement.

Vic Eastop visited during August on a quest for Top End aphids but was not overwhelmed by their abundance and diversity. He kept finding the same few, mainly exotic, species wherever he went.

NT Health - Medical Entomology Branch

The results of the Branch's joint virus research program with the Department of Primary Industry and Fisheries is now yielding interesting results. Mosquitoes collected in the Darwin and Katherine area during the February to April period have yielded a large number of virus isolates including Murray Valley Encephalitis, Sindbis, Kunjin and Ross River Virus. This includes single isolates of Murray Valley Encephalitis from *Aedes normanensis*, and 17 isolates of Ross River Virus from *Culex annulirostris* in the Katherine area. This is the first isolate of Murray Valley Encephalitis from mosquitoes in the Northern Territory and confirms the endemicity of this virus in the Top End of the Northern Territory.

The mosquito drain program is nearing completion for this season and we are now awaiting the spring tides so that Graeme Dobson and Paul Barker-Hudson can play 'Apocalypse Now' with the helicopter control equipment.

Wendy Kelton goes on two weeks leave in mid October and hopes to squeeze in the *Aedes vigilax* control program just before she goes, demonstrating the dedication of the Branch to saving the people.

Peter Whelan is still office bound sorting out problems of fly breeding in 240 litre garbage bins and mosquito prevention in new mining developments.

Office of Supervising Scientist, Alligator Rivers Region

Peter Dostine reports that sampling for the project on dynamics of macroinvertebrate communities of the Upper South Alligator River was completed in October. Soon the laboratory at Jabiru will be awash with data. On that note, the area has just experienced the first storms of the season - to the relief of all.

STUART SMITH
Regional Councillor

SOUTH AUSTRALIA

Department of Agriculture

In all, a quiet few months, the only visitor being Professor C. Sacchi, University of Pavia, Italy, who came to the Northfield Research Laboratories on 10 August to discuss snails with Dennis Hopkins. In early October Peter Allen addressed the visiting Production Research Advisory Committee on the Australian Wool Corporation on the management of invertebrate pests of annual legume pastures.

The millipede parasitoid *Pelidnoptera nigripennis* (Sciomyzidae) was released by the Minister of Agriculture amidst a blaze of publicity in Adelaide in late September. The eight flies narrowly missed being trodden by television crews as they made their escape amongst the litter at the release site. Adelaide's millipedes are taken very seriously by the local citizens and the press, so the progress of these flies will be followed breathlessly by the press for the next few years.

Congratulations to Margaret Evans, Plant Protection Research Officer at Minnipa Research Centre, who has recently had her PhD thesis accepted.

CSIRO Soils Division

Recent activities in the Division include Geoff Baker's departure for southern France in search of natural enemies of the white and conical snails of southern Europe, now so abundant in Australia. He is particularly interested in sciomyzid fly parasites of these snails.

Snails were the subject of discussion with Professor C. Sacchi, who visited recently, while the other visitors, Dr Tim Kingston, Department of Agriculture, Launceston and Phil Haines and Jeff Hirth from the Department of Agriculture, Rutherglen, were interested in earthworms.

A comprehensive survey of earthworms, initially restricted to higher rainfall pastures of South Australia, will now be extended to the cropping regions. Additions to staffing for this work include Robyn Grey-Gardner and Bev Voigt.

South Australian Museum

Eric Matthews went away (13 August-10 September) to look at tenebrionid collections in the eastern states, spending two weeks in Brisbane and a week each in Sydney and Melbourne. He enjoyed renewing acquaintances with colleagues not seen for many years, as well as having to take the more pedestrian option of bus and train transport. Jan Forrest took a mixed fieldwork/leave trip with participants in the Duke of Edinburgh Award Scheme trip to the Oodnadatta-Finke region, collecting quite a few insects and spiders, as well as revelling in the superb show of wildflowers.

Department of Zoology, University of Adelaide

Shelley Barker went on a collecting trip in September/October to Onslow via Mt Augustus, Mullewa, Paynes Find, Esperance, Gawler Ranges. He rediscovered *Astraeus robustus* at Paynes Find, not collected there since 1970. In all he got only one new species of *Stigomodera* (*Castiarina*).

Alice Wells was one of two Australian representatives at the Sixth International Symposium on Trichoptera, in September, held partly in Lodz in a highly industrialised area of Poland, and partly at Zacopane, a tourist resort in the Tatra Mountains to the south. Alice gave a paper on the microcaddisflies of the Malay Archipelago and enjoyed the reunion with the Trichoptera worker's fraternity. Following the symposium she paid a short visit to the Rijksmusem of Natural History in Leiden, collecting for study some more Malaysian (Sabah) micro-caddisflies (collected by Jolanda Huisman), and also called in at the British Museum of Natural History in London.

The Seventh International Trichoptera Symposium is planned for Umea, Sweden in 1992.

ALICE WELLS
Regional Councillor

Flinders University - School of Biological Sciences

Duncan Mackay and Molloy Whalen attended the Symposium on Ant-Plant interactions in Oxford in early July and gave a paper on interactions between ants and some euphorb tree species. On their way back to Flinders, they stopped at the Rocky Mountain Biological Labs in Gothic, Colorado and talked to several people there about things pollinatory.

Mike Bull has also been hitting the conference trail recently: he attended the Population Dynamics of Forest insects meetings at Herriot-Watt University in Edinburgh in early September and then gave a paper on his work on reptile ticks at the First World Congress of Herpetology at Canterbury, Kent. Mike also visited the Waite Institute this month and gave a seminar on reptile ticks.

Waite Institute - Department of Entomology

There have been several comings and goings at the Waite over the last few months. Two new post-docs have begun work in the insect pathology laboratory - Dr Alejandro Arellano is investigating the microbial control of sheep blowfly with funding from the Australian Wool Corporation and Dr Ed Lyness, on a National Biotechnology grant, is looking at optimizing fermentation conditions for microbial biomass and toxin production.

V.V. Madhusudhan has commenced post-graduate studies with Derek Maelzer and will be comparing the efficiency of *Aphytis melinus* and *Comperiella bifasciata* as biocontrol agents for citrus red scale. Paul Dangerfield has started a Masters degree with Andy Austin, working on a taxonomic revision of the Australian *Cardiochiles* spp. (Hymenoptera: Braconidae).

Recent visitors to the department include Dr Hiroshi Yamanishi (Kobe Gakuin Women's Junior College, Kobe) who spoke to the department on the ecology of mosquito vectors, and Arie Lolong, a FAO Fellow from the Coconut Research Institute, North Sulawesi, Indonesia, who is studying integrated pest management techniques.

The department was sad to lose Meredith Kleinig to the rural life and Dr Andrew Gleave to the DSIR in Auckland. An impending departure is Geoff Allen who has accepted a Fulbright post-doc at the University of California at Riverside. Geoff will be working with Dr Bob Luck on the parasitoids of red scale.

Absent on study leave overseas at the moment are Drs Andy Austin and Peter Miles. Andy Austin has been visiting various hymenopteran emporia around the globe, including the British Museum, the Hungarian Natural History Museum, the Biosystematics Research Institute (Ottawa) and the USDA in Washington. Peter Miles has been investigating aphid salivary physiology with Dr P. Harrewijn at the Wageningen Agricultural University, The Netherlands.

Dudley Pinnock, David Cooper and Jane Drummond attended the Symposium on Insect Pathology in Florida in August and Dudley Pinnock continued on to the International Symposium on Pesticides in Crete. Denis Haugen fulfilled his ambition of visiting every Australian state this October when he visited Perth to hold discussions with CALM.

DUNCAN MACKAY
Regional Councillor

News from Affiliated Societies

THE ENTOMOLOGICAL SOCIETY OF NEW SOUTH WALES INC.

The Society meetings for August and September lived up to the expectations forecast in the August Bulletin. The presentations by Mary Lyn Taylor and Bob Taylor (NO, they are not related!) on Environmental Law and Army Ants respectively proved very informative. In October Narelle Sales, from the BCRI, presented a very interesting talk on "Synthetic Pyrethroid Resistance in *Lucilia cuprina*".

Although the calendar year is drawing rapidly towards Christmas, Ent. Soc., NSW has a couple of extraordinary activities to close 1989. A forum entitled "Insect Sciences: The Crises in Education and Employment" is to be held at Macquarie University on 27-28 November, and has been organised to examine the current state of entomology and develop guidelines for the future of this science. (Further details and the program of the forum are included elsewhere in this "Myrmecia"). We hope to see as many interested people attending the meeting as possible as we believe the time is right to make plans for the future of entomology. In addition, a younger Society members' day has been organised for the 3rd December. The day will include some collecting together with instruction for younger folk with entomological interests. It will be punctuated by a barbecue lunch, and we hope for fine weather, lots of bugs, and patience for the older Society members.

JOHN MACDONALD
Representative Councillor

ENTOMOLOGICAL SOCIETY OF QUEENSLAND INC

The final meeting of 1989 will be a combined barbeque and Notes and Exhibits meeting to be held on December 11 at Alan Fletcher Research Station, 27 Magazine Street, Sherwood. For those people who have trouble reading a street directory, details of how to get there are available from Rachel McFadyen (379 6611) or Ross Wylie (377 6481). The barbeque will commence at 5.30 pm and the meeting at the usual time of 8.00 pm. Notes and Exhibits evenings are always most enjoyable and, as always, visitors are most welcome.

On the last weekend of November (24-26th), a Society camp will be held on Gudrun Sarnes' property just south of Stanthorpe. Details of how to get there can be obtained from Gudrun by phoning 840 7704. This should be a profitable weekend for those inclined to collect insects as the *Leptospermum* should be in full bloom.

The November meeting was a special event to hear the Perkins Memorial Lecture delivered by Dr Dick Drew of the Department of Primary Industries. This biennial lecture is presented by the Society to honour the memory of Frederick Athol Perkins who was the first head of the Entomology Department at the University of Queensland, as well as one of the founders of our Society. Perkins was an early worker on pest fruit flies in Queensland and, appropriately, Dick's lecture was entitled "A Century of Fruit Fly Research in Australia". To commemorate the evening Merv Bengston, the Director of DPI Entomology Branch, presented to the UQ Department of Entomology a framed, watercolour painting of the fruit fly, *Bactrocera perkinsi* Drew and Hancock,specially painted for the occasion by Geoff Thompson of the Queensland Museum on commission by DPI. The painting of a fruit fly named by DPI entomologists after Frederick Athol Perkins is suitably symbolic of the long association between the University's Entomology Department and the DPI Entomology Branch. Entomologists visiting the University are urged to inspect this superb painting which will hang in pride of place in the Entomology Department. Some photographs of the evening are provided overleaf.

GREG DANIELS
Representative Councillor

Overseas News

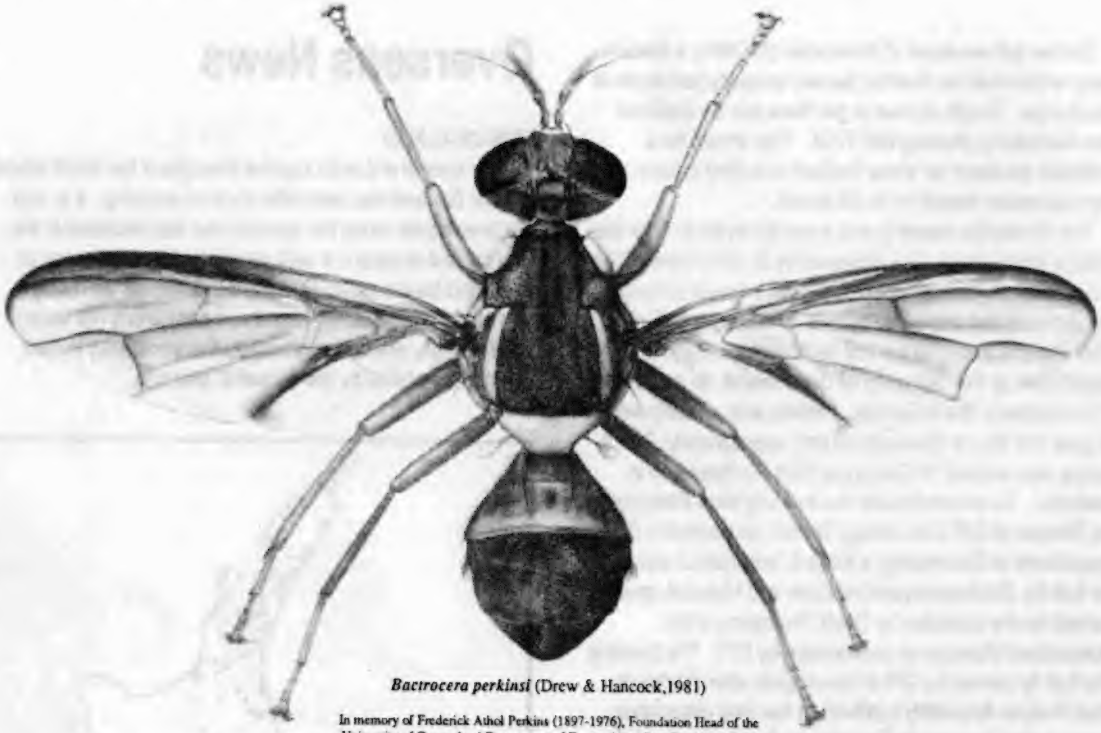
NEW ZEALAND

The spread of *Lucilia cuprina* throughout the North Island of New Zealand has been little short of amazing. It is only just over a year since the species was first recorded in the country and already it is well established in most areas of the island (see the map below). It has not, as yet, been recorded from the South Island and particularly not from Marlborough, which is consistently the worst area in New Zealand for strikes by the related *L. sericata*.

Map of North Island showing distribution records for *Lucilia cuprina*.

JOHN TENQUIST
NZ Correspondent

The Entomological Society of New Zealand held its 38th AGM at Massy University in May at which Dr G.Hosking was elected President. In July the Society conducted a Symposium at which 12 speakers spoke on the general theme of "Import and Export of Insects. Precautions and Opportunities". The Society has recently produced a new butterfly chart with 52 illustrations by British illustrator, Brian Hargreaves, shown displayed on subdued backgrounds representative of the lifestyles of the species by NZ illustrator, Robyn Currie. George Gibbs has provided brief



Bactrocera perkinsi (Drew & Hancock,1981)

In memory of Frederick Athol Perkins (1897-1976), Foundation Head of the University of Queensland Department of Entomology, Past President of the Entomological Society of Queensland, and an early worker on Queensland dacine fruit flies. Presented to the Entomology Department by the Queensland Department of Primary Industries on the occasion of the Perkins Memorial Lecture delivered by R.A.I. Drew to the Society on 13th November, 1989. Watercolour by G.I. Thompson.

(Top) Painting of *Bactrocera perkinsi* by Geoff Thompson for presentation at Ent.Soc.Qld. meeting on November 13. Detail shows the inscription which accompanied the painting. **(Bottom left)** Professor Hugh Paterson (Right) receives the painting on behalf of the University from Dr Merv Bengston of QDPI. **(Bottom right)** Artist Geoff Thompson (Left) with Dr Dick Drew who delivered the Perkins Memorial Lecture.

Dr George Gibbs, of Victoria University, with one of the tusked wetas from Middle Island.(Photo from the *New Zealand Herald*).

information on each species on the chart. These most attractive colour charts (640 X 450mm) are for sale at NZ$7.50 plus postage and can be ordered from Marlene Boyd, Mt Albert Research Centre, DSIR, Private Bag, AUCKLAND.

Entomologists at Victoria University of Wellington have rediscovered the "Jaws" of the insect world. New Zealand is famous for its giant wetas (crickets of the family Stenopelmatidae) but this particular species has enormous, forward-projecting jaws in the male and was only discovered about 20 years ago. It has recently been turned up again on Middle Island, an off-shore islet well known also for its population of tuataras. Plans are underway to monitor this population of the giant tusked weta and perhaps to attempt to establish it on one of the other islands which have had rats exterminated.

ACIAR'S ENTOMOLOGICAL WORK

The Australian Centre for International Agricultural Research (ACIAR), whose general operations were described in the last issue (MYRMECIA 25(3) p. 120), has supported a number of entomological projects since its foundation seven years ago. These have fallen into three categories - biological control of pests and weeds; taxonomy, ecology and control of fruit flies; and use of entomopathogenic nematodes for pest control. Australian organizations have included CSIRO Division of Entomology, Queensland Department of Lands, Queensland Department of Primary Industries, the Northern Territory Department of Primary Industry and Fisheries, and New South Wales Agriculture and Fisheries; developing country partners have been in assorted countries of Asia and the South Pacific.

We have laid strong emphasis on biological control, especially in the Pacific where island situations offer excellent prospects for such control to succeed. Apart from supporting actual projects we have tried in general to promote the idea of biological control as an environmentally safe means of pest reduction, and as a rigorous scientific discipline (for which we have helped to produce guidelines for safe and effective conduct of operations).

As part of the encouragement and information process, ACIAR supported Doug Waterhouse and Dick Norris in producing a book, "Biological Control: Pacific Prospects", that dealt with the thirty worst invertebrate and eighteen worst weed pests of the Pacific, as perceived by the countries of the region, with a detailed chapter on each describing the distribution, biology and known natural enemies of each pest species, and an assessment of previous attempts at and current prospects for biological control. This has received much acclaim, not only from the Pacific region. One supplement has already been produced, with "Dossiers" on further species still in production, and Asia is showing keen

interest in a similar reference work for its region.

Target pests for biological control projects have included:

. *Mimosa pigra* - a most serious problem in the Northern Territory and in Thailand, where a variety of natural enemies are being used in conjunction with some herbicidal treatment.

. *Mimosa invisa* - another giant sensitive plant, of major concern in Queensland and several Pacific islands; control agents established in Australia have now been released in Western Samoa as well.

. *Salvinia molesta* - the success achieved in Australia and Papua New Guinea has been repeated in Sri Lanka, and releases are also being made in the Philippines and Malaysia.

. fruit-piercing moth (*Othreis fullonia*) - natural enemies from Papua New Guinea are being introduced to Western Samoa and to Australia.

. banana skipper (*Erionota thrax*) - recently causing serious damage to banana plants in Papua New Guinea; successfully controlled elsewhere, and this current project is testing the known natural enemies against other PNG skippers to ensure that they do not attack desirable elements of the fauna.

. banana weevil (*Cosmopolites sordidus*) - results with entomopathogenic nematodes in New South Wales are being extended to Tonga; a cyclone destroyed the first trial plot, but we hope for more luck with the repeat.

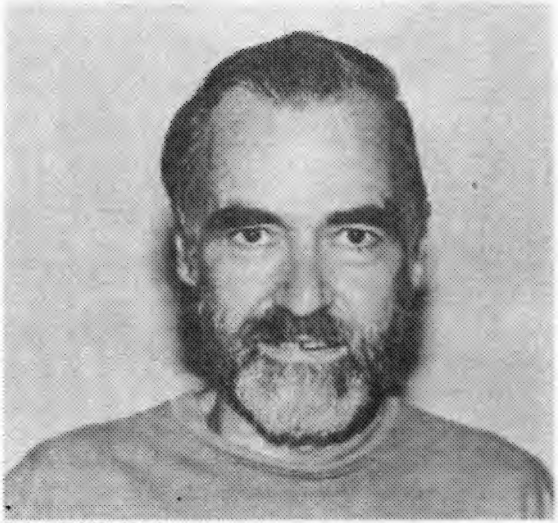
. white peach scale (*Pseudaulacaspis pentagona*) - a species with a range of hosts in different countries, which in Western Samoa chose to attack passionfruit and wiped out a thriving pulp industry; now rapidly and totally controlled by hymenopterous parasites, and a good example of how dramatic biological control can be when it works in island situations.

We are also supporting work on standardisation of monitoring methods for leucaena psyllid (*Heteropsylla cubana*), pending a decision on whether this insect merits broader research, and we are planning projects to control banana aphid (*Pentalonia nigronervosa*) in Tonga (a serious problem as a vector of banana bunchy top virus), and to improve control of lantana in the Pacific using additional natural enemies already introduced to Australia.

In future issues of MYRMECIA I will describe two recently completed and very successful projects, and how ACIAR plans to follow up on them - one on the economically important fruit flies of Malaysia, and another in which entomopathogenic nematodes have been used widely and with very good results against a number of pests in China.

PAUL FERRAR
Research Services Officer, Crop Sciences
ACIAR, GPO Box 1571
CANBERRA ACT 2601

OBITUARY



Robert Neil Nankivell
(March 13, 1929 - September 23, 1989)

Neil Nankivell, a former member of the Society died in Melbourne on September 23, 1989 after an illness lasting several months. Neil came into studies of the cytogenetics of grasshoppers relatively late in life, after working as a biochemist at the Commonwealth Serum Laboratories for almost 10 years.

Born in Tecoma, Washington, U.S.A., while his parents were in that country, Neil did his secondary education at Unley and Adelaide High Schools before doing a BSc at Melbourne University from 1946-1950. He returned to the University in 1962 to upgrade his knowledge of Zoology and Genetics before enrolling in an MSc in 1963. He subsequently converted to a PhD which he completed part-time while working as a Senior Demonstrator in Genetics from 1966 to 1971.

Neil then went to the U.K. in 1972 for a postdoctoral year in the Zoology Department, University of Southampton

working with Barney John. When Barney went to the Research School of Biological Sciences at the Australian National University in 1973, Neil also transferred there as a Research Fellow and remained there until 1976. He published several papers, on his own or jointly, on the results of his studies of inversion polymorphism, supernumerary chromosomes and heterochromatin in the genetic systems of grasshoppers such as *Austroicetes interioris*.

In 1976 Neil decided to give up his scientific career and moved to Ganeshpuri in India where he spent his life in meditation. When his illness was diagnosed he returned to Melbourne for treatment. Neil will be remembered by those who knew him as very reserved and quietly spoken, with an old world courtesy and a desire to cause no inconvenience to those with whom he came in contact. He is survived by two brothers who live in different parts of Victoria.

JON MARTIN
University of Melbourne

1991 Churchill Fellowships
for overseas study

The Churchill Trust invites applications from Australians, of 18 years and over from all walks of life who wish to be considered for a Churchill Fellowship to undertake, during 1991, an overseas study project that will enhance their usefulness to the Australian community.

No prescribed qualifications are required, merit being the primary test, whether based on past achievements or demonstrated ability for future achievement.

Fellowships are awarded annually to those who have already established themselves in their calling. They are not awarded for the purpose of obtaining higher academic or formal qualifications.

Details may be obtained by sending a self addressed stamped envelope 12 x 24 cms to:

The Winston Churchill Memorial Trust
218 Northbourne Ave. Braddon,
ACT 2601.

Completed application forms and reports from three referees must be submitted by Wednesday 28 February 1990.

OBITUARY

Martin Joseph Manski
(27 February 1897 - 31 July 1989)

Martin Joseph Manski was born and lived most of his life in Maryborough, Queensland. His parents and family moved from Germany and settled in Maryborough in 1885. Joe Manski's interest in entomology commenced at the age of four or five when he discovered early stages of the common crow butterfly in the front garden of his parent's home. Observing the metamorphosis of these juveniles to adults so enthused Joe that he began to search for other species and so began an interest which lasted a lifetime.

Joe commenced his life career with the Post Master - General's (PMG) Department at the age of 15 years. He had previously worked for a short time as an office boy with the Maryborough Co-operative Dairy Association Office, after leaving school when he turned fourteen. With the

PMG, Joe started as a telegraph messenger. It was not uncommon for him to deliver all day without breaks for lunch and occasionally well into the evening with a small kerosene bicycle lamp as the only means of illumination.

Joe served overseas for a period during World War I. Soon after his return, he met Mona, a local girl, and married her in June 1920. Mona predeceased him in September 1981, after 61 years of married life.

After a transfer to the post office in Innisfail in 1926, Joe began to fervently investigate the life histories of the northern Queensland butterflies, many of which, unknown to Joe, were entirely unrecorded. Joe rarely used a net and killing bottle as collecting tools, but observed adult females ovipositing and then reared the juvenile insects to maturity to satisfy his curiosity and field requirements. Despite such a comparatively low profile during his field activities, Joe soon gained unwanted local attention, and with no mask of formal education or professional status, became subjected to mockery and derision. Never-the-less his enthusiasm was not perturbed.

While residing in Cairns during the early 1930's, Joe's entomological activities became known to G.A. Waterhouse, Honorary entomologist to the Australian Museum, via W.H. Hemmingway a visiting entomologist from New Zealand, who heard of Joe's expertise and visited him in Cairns. Waterhouse subsequently contacted Joe and encouraged him to record life history information and supplied a copy of "What butterfly is that?" to assist him in the field.

Joe published his first paper, on the life history of *Vindula arsinoe ada* (M.R. Butler), in 1933 which was followed by two more on this species. His efforts began to be taken seriously in the eyes of the public when in 1935 he received some publicity in *The Cairns Post*, after rearing the Hercules moth. Between 1936 and 1940 Joe published seven articles, all in popular style, on several tropical butterflies which included some new life histories. His most important discovery was the life history of *Virachola democles*, an extremely rare lycaenid known then from only two specimens. Joe successfully reared several specimens from fruits of the vine, *Strychnos bancroftiana*, from which he had initially been seeking fruit flies. Joe was active with the North Queensland Naturalists Club and all his articles of this period appeared in the *North Queensland Naturalist*.

Due to ill health in the tropics, Joe transferred to Brisbane in 1941. Whilst in Brisbane he exhibited specimens at meetings of the Entomological Society of Queensland and went bush with the local collectors, especially Ludvig Franzen and Fred Smith. Brisbane entomologists F.A. Perkins and A.W.S. May named in his honour a new dacine fruit fly which Joe reared from the same fruit from which he had bred the *Virachola* butterflies. The dipteran is currently known as *Bactrocera manskii* (Perkins & May).

In 1945 Joe returned to his birth town of Maryborough where he was placed in the PMG Inspection Branch. A brief foray into lacewing taxonomy was undoubtedly influenced by his friendship with Ludvig Franzen who had an interest in the Neuroptera. In 1948 Joe described a new species of lacewing and named it *Stilbopteryx brocki* after his friend Stan Brock, who had collected it at Kalpowar, north west of Maryborough. This was the only species he formally described, and is currently recognised as *Aeropteryx brocki* (Manski). Joe's final paper which appeared in the *Queensland Naturalist* in 1960, listed over 250 larval hosts for some 136 Queensland butterflies and moths which he had reared since 1930 in the Cairns-Innisfail district and in southeastern Queensland.

Joe retired in February 1962, after 49 years service with the PMG. About this time Joe once again received some publicity, this time from the *Maryborough Chronicle*, giving a full page to Joe's pioneering achievements in amateur entomology. Joe then aged 65 was pictured displaying his collection of mostly butterflies and moths at his home in Baddow, Maryborough. In 1963 his insect collection was purchased by the University of Queensland.

During the 1980's, Joe became confined to a retirement village in Maryborough, but still participated in occasional outings with interstate visitors, in particular with a number of members of the Entomological Society of Victoria. Joe's enthusiasm never wavered, and he accompanied collectors in the field even at 87 years of age. About 1985 his diminishing eye sight made field work difficult and he was content to remain in his cottage. At the age of 92 years, he still keenly received visitors until not long before his death in July 1989.

In February 1989 an informal biography on Joe appeared in the *Victorian Entomologist* (19: 9-13), and was followed by a concluding report after his death (19: 61-64).

KELVYN DUNN
Plant Research Institute
Burnley Victoria

Research Requests

AN APPEAL FOR FLEA LARVAE FROM AUSTRALIA

Exciting developments are taking place in research into the morphology and taxonomy of flea larvae. An accumulation of publications from many countries in Europe and North America is leading to a better understanding of the form of this stage in flea life-history, pointing to strong possibilities for some major taxonomic revision and ultimately to a derived phylogeny.

Most of the published work is, however, circumscribed around relatively restricted faunas and, coming from north of the equator, understandably omits those families of fleas which occur solely or predominantly in the southern hemisphere.

Work in my laboratory, using material from many countries and including all the groups so far published, is based on a much greater range of families and lower taxa than hitherto (Pilgrim, 1988, and in press). It has led to a broader perception of the morphological variation in flea larvae. Nevertheless there are major categories known from only the Australian zoogeographic region (as also the Neotropical) which are poorly known or not represented at all in any collections. This appeal is to seek assistance in obtaining some of the missing forms, so that a more comprehensive collection can be studied.

Australia has at least one whole family and several subfamilies of fleas which are endemic (indicated by an *); they are mainly associated with marsupials and/or native rodents. The particular groups for which larvae are desired are:

MACROPSYLLIDAE**: *****_Macropsylla_, 1 sp. on _Rattus_ spp. and _Antechinus_ spp.; mainly Vict., NSW, Tas.;**_Stephanopsylla_, 1 sp. on various marsupials, especially W. Austr., but appears to be uncommon?

STEPHANOCIRCIDAE: *****Stephanocirclnae: *****_Stephanocircus_, 7 spp.; _S. dasyuri_ is reported as very common on numerous rodents and marsupials in most states.;*****_Coronapsylla_, 1 sp. on _Antechinus_ spp.; Vict., NSW.

PYGIOPSYLLIDAE: *****Lycopsyllinae: *****_Lycopsylla_, 2 spp. on wombats, SE Austr. especially NSW, Vict., Tas.;***Uropsyllinae**: *****_Uropsylla_, 1 sp.; Tas., Vict. I have specimens of the later instars, parasitic in the skin of _Dasyurus_ spp., but early, non-parasitic instar(s) would be much appreciated.;**Pygiopsyllinae**: *****_Bradiopsylla_, 1 sp. on echidnas; Tas., Vict., NSW. The larvae are large (possibly parasitic on the host?).;*****_Choristopsylla_, 3 spp.; widespread on arboreal marsupials.;*****_Acanthopsylla_, 9 spp.; on a wide range of marsupials and rodents [also in Papua New Guinea].;_Hoogstraalia_, 1 sp. on passerine birds; Tas.

HYSTRICHOPSYLLIDAE: **Doratopsyllinae**: *****_Acedestia_, 1 sp. on marsupials; Vict., W. Austr.;_Idilla_, 1 sp. on _Antechinus_: NSW.

ISCHNOPSYLLIDAE: confined to bats; larvae present in droppings/guano. _Porribius_, 2 spp., *****_Coorilla_, 2 spp., _Lagaropsylla_, 1 sp.; most states.

Thus, most of the larvae needed are of fleas associated with native _Rattus_ spp., Peramelid and Dasyurid marsupials, and bats (for further details, see Dunnet & Mardon, 1974). Since many of the host animals are no doubt protected native species, it is emphasized that collections of nest debris may be made in the absence of the hosts or from recently vacated nests.

A procedure for extracting flea larvae from nest debris

Flea larvae are, with rare exceptions, non-parasitic 'maggot-like' forms (Fig. 1), mostly 2-6 mm long, living as scavengers among the litter in the nests of their host mammal or bird. They are readily recoverable in a Berlese-type funnel (Fig. 2).

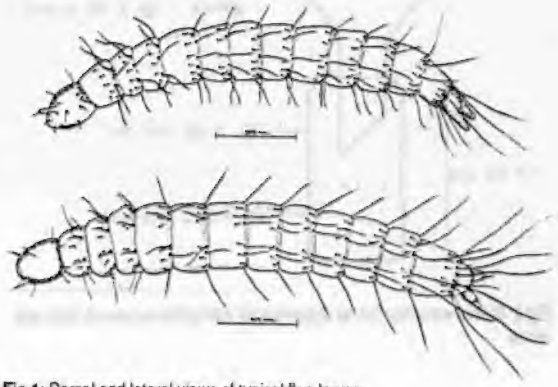


Fig 1: Dorsal and lateral views of typical flea larvae

The procedure I have found effective is to collect a few handfuls of nest litter into a plastic bag, seal the bag to prevent escape of fauna (but not too tightly; some air space should be included if the sample is not to be processed immediately). Do not allow the contents to become heated; if delay is expected before processing can begin, keep the bag cool but do not refrigerate.

Spread the sample over the gauze in the extraction funnel, having at first a **dry** container (e.g. Petri dish) beneath the spout; the initial fine debris which falls through can be carefully returned to the funnel - this avoids overloading the next, alcohol-containing receiver. When no further disturbance will be made, replace the Petri dish with a jar containing 70% ethyl alcohol to *ca* 50 mm depth. Arrange a heat source (25 - 40W light bulb) above the debris and leave undisturbed for 2-3 days.

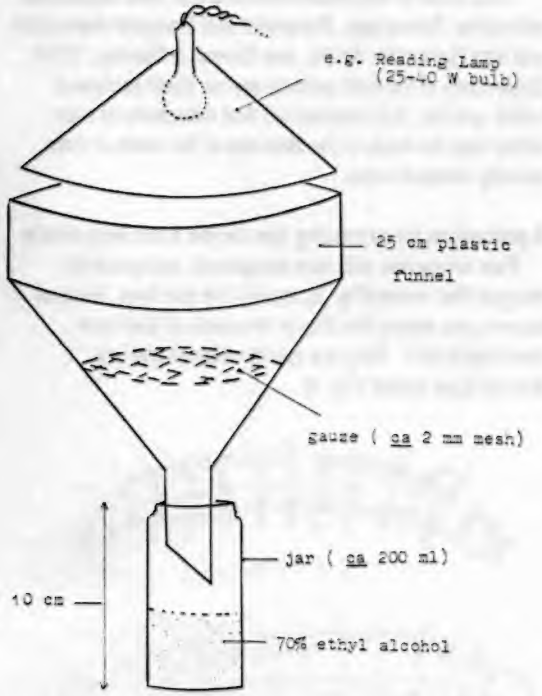


Fig 2: Simple extraction funnel apparatus for driving flea larvae out from nest debris

The extract can be either:

1. sent 'as is' in convenient small tubes (if you want the associated fauna it will be returned on request); or
2. sorted to separate fleas plus their larvae - please send both larvae **and** adults if the latter appear in the extracts (adults are valuable indicators of the possible identity of accompanying larvae).

If no live larvae are present in the debris, dead larvae may be extracted by standard flotation methods, or the debris can be sieved and the larvae sorted out from the smaller faunal elements.

Samples pass readily through NZ Customs inspection if labelled "Preserved Insects for Scientific Study". All samples will be acknowledged on receipt and in subsequent publications which include them.

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R.L.C. PILGRIM
Department of Zoology
University of Canterbur
Christchurch, New Zealand

EUCALYPT LERPS FROM THE SYDNEY REGION

The spondyliaspid psyllid *Cardiaspina brunnea* (Frogg.) has been in outbreak proportions in the lower Great Southern region of Western Australia since 1982. This species was originally collected by Froggatt in 1923 from *Eucalyptus paniculata* and *E. rubida* near Sydney (Taylor pers. comm.), however no type specimen was erected and

no formal description made. Apart from the adult specimens sent to Keith Taylor from Western Australia in 1988 no adequate adult specimens (suitable for description) from the eastern states are known to exist.

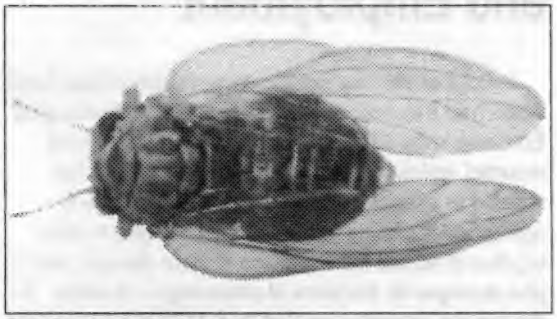

Fig 1: Specimen of *Cardiaspina brunnea*

The lerp case of this species is similar to the shell-like lerps of *C. textrix* and *C. corbula* (see Taylor 1962, *Aust. J. Zool.* 10(2): 307-348, Plate 1) with the mature lerp/s having distinctive dark cross banding.

Keith Taylor of CSIRO, Canberra is working on the taxonomy of this insect and needs adult specimens preferably from the near-Sydney areas of Froggatt's original collection site. This is of course to verify whether the eastern and western populations are one and the same species. I, on the other hand, am working on the ecology and biology of this insect and would be interested to know of localities where this species can be found and/or any parasitoids collected from this species.

Therefore if you know of any specimens in collections or are aware of any field populations could you please contact either Keith Taylor or myself at the following addresses.

Keith Taylor
CSIRO, Division Entomology
GPO Box 1700
CANBERRA ACT 2601
Ph: (062) 46 4911

JANET FARR
CALM Research
Brain Street
MANJIMUP WA 6258
PH: (097) 711 988

RECORDS OF *MYCALESIS SIRIUS*

I am currently collecting distributional data for the satyrine butterfly *Mycalesis sirius sirius* from the Australian region (the species occurs in the Northern Territory and north-east Queensland). I would greatly appreciate any specimen or observational records (ie. locality, date, collector, etc.) which other lepidopterists or private collectors may have. This information will form the basis of a detailed understanding of the species, geographic and habitat distribution. All contributions will be acknowledged accordingly.

Please send information to:

MICHAEL F. BRABY
Zoology Department
James Cook University
TOWNSVILLE QLD 4811

XIX INTERNATIONAL CONGRESS OF ENTOMOLOGY

June 28-July 4, 1992
Beijing, China

(Advance Notice)

The XIX International Congress of Entomology will be held in Beijing International Convention Center (Asian Games Village) , June 28-July 4, 1992.

Organising Committee

Honour Chairman	H.F. Chu
Chairman	S.S. Liu
Vice Chairman	L.Y. Li
	Y.S. Chow
	M.Y. Liu
Secretary General	Z.L. Zhang

Advisory Committee

Chairman H.F. Chu

Programme Committee

Chairman Y.L. Chen

Fund Raising Committee

Chairman M.Y. Liu

Scientific Programme

The programme will include plenary sessions, symposia, workshops and special-interest group meetings, as well as contributed paper and poster sessions. The programme will probably be divided into the following sessions:

- Systematics, Phylogeny & Zoogeography
- Morphology and Ultrastructure
- Cell Biology, Physiology and Biochemistry
- Genetics and Bio-engineering
- Ecology and Principle of IPM
- Behaviour and Mass Rearing
- Social Insects and Apiculture
- Insect Pathology
- Biological Control
- Agricultural Entomology and Pest Management
- Forest Entomology and Pest Management
- Medical and Veterinary Entomology
- Toxicology
- Pesticide Development, Management and Regulation
- Stored Product Insects and Urban Entomology
- Sericulture
- Acarology
- Insect Resources and Natural Conservation
- Special Theme

Entomologists wishing to propose sectional symposia, workshops or special-interest group meetings should write to the Secretary General with details.

Social and **Accompanying Persons Programme**, **Pre-** and **Post-Congress Tours**, as well as **Exhibitions** are planned.

Language. The official language of the Congress is English.

The **First Announcement** will be distributed in January, 1990.

Persons wishing to get further information should write to:

Secretary General
XIX International Congress of Entomology
19 Zhongguancun Lu Beijing
100080 China

(Tel: (861) 282266, Telex: 222337, ICCST CN Fax: (861) 2565689).

Insect Science: The Crisis in Education and Employment

In October 1981 the Entomological Society of New South Wales held a workshop/symposium entitled "Entomological Education in the 80's". Since then many changes have occurred, and many scientists believe that science has suffered as a result. The Society feels that the time is appropriate to provide a forum for entomologists to come together to discuss the implication of these changes, and to plan strategies for the future of entomology in Australia. To this end the Entomological Society of NSW has planned the following comprehensive programme for 27th-28th November 1989 at Macquarie University. All entomologists and interested persons are invited to attend. Further details are available from Society President, John Macdonald on (02) 6839777, or from Dinah Hales at Macquarie on (02) 8058181.

Day 1

Session 1. DEFINING THE PROBLEM

8.45 am Opening and Introduction	J. Macdonald President Ent. Soc. NSW
9.15 am Industry View of the Crisis	J. Watt BAYER Aust.Ltd.
9.45 am Educational View of the Crisis	F.J.D. McDonald University of Sydney
10.15 amInsect Scientists's View of the Crisis	G. Rothschild ACIAR

Morning Tea

Session 2. SPECIFIC CASE HISTORIES

10.30 am The Threat to Taxonomy	M.J. Fletcher NSW Ag. & Fisheries
11.00 am The Threat to Insect Ecology, Biological Control and Quarantine	P. Room CSIRO Entomology
11.30 am The Threat to Insect Pest Management and Insect Conservation	A. Bishop NSW Ag. & Fisheries
12.00 am The Threat to Urban Entomology/Public Health	R. Toffolon NSW Ag. & Fisheries and R. Russell Westmead Hospital

Lunch

Session 3. SOLUTIONS

1.30 pm Introduction Exploring solutions	R. Schultze
2.00 pm An Industry View	I. McIver Aust. Turf Grass Res. Inst. Ltd.
2.30 pm An Educational View	S. Barlow and D. Hales Macquarie University
3.00 pm An Insect Scientist's View	R. Kitching University of NewEngland

Afternoon Tea

Session 4. GOVERNMENT POLICY; SCIENCE AND THE ECONOMY

3.15 pm Future Public Service Employment of Scientists	A. Gibson NSW Public Service Association
3.45 pm Financing and Taxation Aspects of Current Science Policy	W. Kimble Macquarie University
4.15 pm Government Scientific Policy	M.J. Whitten CSIRO Entomology

Informal discussion over drinks

Day 2

Session 5. FORMULATING GUIDELINES FOR THE FUTURE

8.30 am - 5.00 pm

An open forum to discuss the matters raised on Day 1 as well as considering means of bringing about effective change to deal with the crises in entomological education and employment

Chairman: A. Beattie, NSW Agriculture and Fisheries.

1989 POSTGRADUATE PROJECTS

The following was not included in the list of Australian postgraduate projects published in the May issue of "Myrmecia" earlier this year:

University of Western Australia
Geography Department

L.A. Lobry de Bruyn. The role of ants and termites in modifying soil properties in naturally vegetated and agricultural environments (PhD).

News from the Conservation Committee

The committee has continued to put most of its efforts into preparing submissions for government inquiries. During the last quarter Eric Matthews (with some contributions from myself) wrote a letter to the South Australian Department of Environment stressing the need to address the problems of invertebrate conservation. This letter was based on statements made in the Concom Charter on Invertebrates printed in the last MYRMECIA. So far no reply has been received to this letter. Barbara York Main, with help from Lionel Hill, prepared a submission to ASTEC's inquiry into the state of environmental research in Australia which emphasized the importance of taxonomy. A copy of the terms of reference and our submission follow. We also wrote pointing out the need for the new Endangered Species Unit in the Australian National Park Service to pay particular attention to invertebrates. These letters were written to the Minister, Graham Richardson and to the Director Dr Ovington and received the reply attached. Last week a draft policy statement was released by the Advisory Committee for the Unit with requests for public comment. The statement is very disappointing in that invertebrates are hardly mentioned nor the need to preserve their habitats. In fact the impression given by the Statement is that Australia contains plants and vertebrates only. It is clearly very important that we prepare a strong submission to this document and so I am seeking contributions from all members. The closing date for submission is December 29th so please send your suggestions to me by the end of November. We are especially interested in receiving concrete proposals as to what the Endangered Species Unit should do and what the role of the Advisory Committee should be. The draft document is available from the ANPWS in Canberra and is called 'An Australian National Strategy for the Conservation of Species and Habitats Threatened with Extinction'.

I have only this week returned from nearly two months overseas during which time Tim New and myself attended the symposium on Insect Conservation organised by the Royal Entomological Society of London and to which we contributed a paper entitled 'Australia: conservation of a continental fauna'. All the invited papers will be published by Academic Press next year. We also spent one day at a IUCN workshop to discuss a global strategy for invertebrate conservation. Reports of both those meetings are attached.

There is still time to contribute to our submissions to the government inquiry into coastal environments and their management. The terms of reference were included in the May MYRMECIA . Please send any comments to Gerry Cassis at the Australian Museum. We had an appreciative letter from the secretary to the Land Degradation Inquiry saying that our submission was helpful to them.

In a different vein, we are running a workshop on conservation of rainforest invertebrates at the next AGM in Canberra next July (see elsewhere in this MYRMECIA). The workshop will be called, 'Are Australian rainforest insects diverse?' with a subsidiary question 'How can they best be conserved?' We are hoping that there will be contributions from all invertebrate projects funded by the National Rainforest Conservation Programme. Could anyone interested in attending this workshop please let me know.

PENELOPE GREENSLADE
c/- CSIRO Division of Entomology
GPO Box 1700
Canberra ACT 2601

REPLY FROM ANPWS

Dear Ms Greenslade,

Senator Richardson has asked me to thank you and reply on his behalf to your letter of 31 July 1989 regarding the views of the Australian Entomological Society towards the Endangered Species Program. I will also take this opportunity to reply to your letter to me of the same date, and dealing with the same matters.

The Minister has noted your concerns and welcomes your offer of specialist advice on matters relating to the conservation of insects and their habitats.

As you point out, there are no invertebrate specialists on the Endangered Species Advisory Committee (ESAC). However the Committee and the Endangered Species Unit contain a high proportion of ecologists who are very aware of the importance of invertebrates in ecosystems. In addition the terms of reference of the ESAC clearly define its role in the conservation of habitats as well as species.

There may be occasions when the ESAC requires more specialist advice on issues relating to insects and at such times the assistance of your organisation will be of great benefit. Your letter has been forwarded to the Committee for information.
Yours sincerely

Prof J.D. Ovington
Director
Australian National Parks and Wildlife Service

ASTEC: AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL

Submission on:
State Environmental Research in Australia
by Barbara York Main (Zoology Department, University of Western Australia) for the Conservation Committee of *The Australian Entomological Society*

This submission addresses the pertinence of entomology and the role of terrestrial invertebrates in environmental research in Australia. Insects pervade all environmental habitats. On a global base they make up about 72% (an estimated 7 million species) of species of the biotope (Ride 1978). In Australia there are an estimated 108,000 insects compared to about 1,930 terrestrial vertebrates (Taylor 1976). Insects and other terrestrial invertebrates are the largest faunal components of any ecosystem, which systems in fact are dependent on the activities of invertebrates (Key 1978, p. 5; Wilson 1987). In brief, New (1984) states "The importance of insects results largely from their enormous numbers and diversity, giving them substantial roles in material recycling and ecosystem maintenance:.

Given that it is generally accepted by the Australian Commonwealth Government that insects and other invertebrates play a significant role in any biotope (or ecosystem) (see the Council of Natural Conservation Ministers Australian Statement on Invertebrates) our comments are here directed accordingly to the three specific points outlined within the terms of reference.

(1) Importance of environmental research to the resolution of major environmental issues

Before the impact of any external activity on a prescribed environmental site can be evaluated it is necessary to understand its biological composition including (our emphasis) insects and other invertebrates.

Understanding of any fauna (or flora) depends largely on: (a) taxonomic expertise (trained personnel e.g. systematists/ taxonomists) and (b) a resource ("data bank") of systematic knowledge in the form of published accounts of biological taxa and comprehensive reference collections.

In Australia much of the fauna is still unnamed (see Taylor 1976; Richardson 1984) and there are insufficient trained taxonomists and biosystematists to cope with the demands made by the scientific and general community (in this context the interacting groups of environmental scientists and other bodies such as developers, mining enterprises, other land and natural resource users). Complete identifications of invertebrate fauna in many instances cannot be made in order to comprehensively evaluate the ecological needs of such fauna and what impact outside influences are likely to have on particular sites.

This deficiency leads to the second point of reference:

(2) Strengths and weaknesses in environmental research effort and research training

Universities are the traditional training ground for professional biologists (including entomologists). However during the last four decades because of the development of various sophisticated disciplines in biology (behaviour, specialised physiology, genetics, molecular biology etc) teaching of traditional and classical biology (including systematics and taxonomy) has declined (see Appendix A). McDonald (1989) speaking about teaching of entomology in tertiary institutions states that "the subject that tends to be displaced more and more is unfortunately .. taxonomy ..." In spite of this universal decline some prominent University teachers do at least recognize that there is a need for sound systematic training at undergraduate level to give such disciplines as ecology a substantial base (Jones 1989, p. 4). And McDonald (1989) predicts "a growing demand for trained personnel to cope with the naming of insect species, and" ... "the training institutions will have to respond to this demand".

At the same time as the emphasis in biological training has shifted, support has waned for natural history museums and collections (which hold the reference collections e.g. "data banks" which are imperative for the fulfilment of systematic studies). Thus support is now not generally

commensurate with the demands currently made on such institutions in relation to environmental studies and issues (as in biological surveys, environmental impact assessments, evaluation of areas for reserves, statements on conservation status of areas, advice on various land uses).

Reduction in the training (teaching) of systematics means that:

- modern revisionary work on insect and other taxa is not being done
- and the unnamed fauna is disappearing without being described, recorded or the significance (even "use") of such taxa in ecosystems or applied fields being recognized.

Furthermore, the outcome of this dual starvation for systematic research and ongoing curation of collections is that present assessments of the natural environment (biological resources) are incomplete. This in turn means that we cannot make: (a) adequate predictions about such biological resources for the future and (b) design practical blueprints for safeguarding the environment in the longterm.

(3) Environmental research priorities

Implicit in the above is the contention:

- that insects and other invertebrates are the base of any ecosystem
- that biosystematics as a discipline underpins our understanding of the biological environment.

Forearmed with this knowledge it is apparent that because of the increasing exclusion of systematics and taxonomy in our educational emphases in biological disciplines we are jeopardising the future of our indigenous biological resources.

We believe a direction for minimising and/or rectifying this deficiency is to give higher priority to:

- systematics and taxonomy in biological research
- and to increase financial support for natural history museums and taxonomic collections in other institutions.

At present granting bodies such as ARC and particularly ABRS do support some taxonomic research. The Australian Biological Resources Study programme (in spite of current increased support) still cannot meet the demands as measured by applications for support even for the stringently selected annual set of "target" groups/taxa. Neither granting source can currently meet the needs as outlined above in(2).

The above could be achieved by:

- Providing a special funding scheme to support environmentally oriented systematic studies on terrestrial invertebrates through: (a) post graduate fellowships to pursue taxonomic topics (e.g. PhD students — note that at present ABRS does not per se fund post graduate students) and (b) "apprentice-type" fellowships for post graduate personnel to work in natural history museums (and other similar collection based institutions) under the guidance of taxonomic specialists; (c) special employment opportunities for systematics in biological survey teams, environmental assessment and land use advisory projects.

In summary we claim that:

(1) taxonomic expertise or trained personnel combined with a resource of systematic literature and natural history reference collections underpins the validity of all other (biological) environmental work

(2) the taxonomic expertise is at present insufficient to meet current demands

(3) the present and future integrity of the biological environment is being jeopardised in part because of our lack of taxonomic knowledge of the invertebrate fauna.

We believe that the above deficiencies can be ameliorated by:

(1) highlighting awareness of these taxonomic deficiencies and therefore

(2) supporting postgraduate studies in systematics/taxonomy

(3) supporting "apprentice type" employment in natural history museums and other biological collection-based institutions.

(4) supporting employment of invertebrate systematics in any biological survey teams, environmental assessment and land use advisory projects.

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APPENDIX A

The Australian Entomological Society makes occasional surveys of graduate student topics in entomology. According to the last census (*Myrmecia*, vol. 25(2), 81-89) it appears that less than 10% of over 240 current post graduate projects involve systematics. Of the 25 systematic studies, 7 are being undertaken at the Entomology Department of the University of Queensland which is traditionally the main training ground for both systematic and applied entomologists in Australia. Most of the (total) topics involve pest species or at least taxa with some direct economic or agricultural importance. Only about five (including two on spiders) concern indigenous taxa with no immediately apparent "commercial" or directly applied relevance. Thus the current post graduate (and therefore future potential professional) effort towards resolving the "taxonomic impediment" besetting the study of indigenous arthropods is minimal.

THE CONSERVATION OF INSECTS AND THEIR HABITATS

Report of the 15th symposium of the Royal Entomological Society of London. September 14-15th 1989.

As an indication of the importance this subject is now receiving world wide, the RESL has devoted the fifteenth of its series of symposia, which started in 1972, to the topic of insect conservation. More than 95% of the world's described species are insects or other invertebrates and research in the past few years has shown how little we know about insect diversity. Estimates of the world fauna range from 3 to 30 million species and there is no doubt that numerous insect species are disappearing before ever having been collected.

The aims of the symposium were to provide a review of the status of insect conservation of all major biogeographic regions with reports of relevant strategic research in order to show the subject had a firm scientific basis. As is the normal procedure with these symposia, it consisted of a number of invited papers and some contributed posters. The organisers, Mark Collins (IUCN) and Jeremy Thomas (ITE, Furzebrook), brought together 16 titles of which seven were regional reviews, five dealt with management, two with methodology (mapping and monitoring), one with research and one with anthropomorphic aspects.

Regional revues came from North America (P. Opler), New Zealand and Hawaii (F. Howarth and G. Ramsay), Australia (P. Greenslade and T. New), Brazil (K. Brown), southeast Asia (S. Sutton and M. Collins), Northern Europe (K. Mikkole) and Italy (A. Casale and E. Balletoo). Management papers on forests (M. Warren), agricultural land (J. Dover), and the creation of successional (M. Usher and R. Jefferson) and wet land habitats (G. Forster) all described work in England. The two on methodology, one on modern methods of mapping including Geographic Information Systems (W. Geraedts) and the other on monitoring change in ecosystems (J. Thomas and A. Erhardt), were also based in northern Europe. Of all the papers only J. Dempster's on size and mobility of butterfly populations and size of individuals, could be said to have a major pure research component. One paper (M. Morris, N. Collins) dealt with insects directly affecting man i.e. as food, in medicine, agriculture, trade, etc. The introductory address by Norman Moore on dragon fly conservation was concerned with the world fauna but as there are only about 4,000 described species in the world, such a global approach was possible.

It was heartening to see that progress is so advanced with species mapping in Europe and North America that attention can now be given to management. Creation of habitats was a dominant theme. Those described were successional types in quarries and heathlands (Usher), ponds and dams for waterbeetles (Forster) and dragon flies (Moore), conservation headlands in agricultural land (Dover) and dead wood habitats (Warren) in forests together with re-

establishing a programme of pollarding and coppicing. These were all producing encouraging results. The importance of corridors and islands to permit migration between reserves and buffer zones was stressed by a number of speakers (Moore, Dempster etc). Some points of particular interest emerged. For one species of beetle, a distance of more than 600 metres is too great for this species, which colonises an early stage in the succession, to reach before the habitat became unsuitable for it (Warren). Thomas and Erhardt showed that butterflies of grassland respond to changes more rapidly than plants and Dempster that size and number of reserves have to be sufficiently large to permit the maintenance of adequate genetic diversity in populations for size and mobility to prevent extinction (Dempster).

The regional reviews dealt among other things with the inadequacy of the information base (Sutton and Collins), the dangers of biological introductions (Howarth and Ramsay) especially on islands, and the need to preserve both diversity and endemism (Brown, Greenslade and New), the importance of Pleistocene refuges (Mikkole and Casale and Balletto) and the conservation status of rare and endangered butterflies (Opler).

Among many entomologists the subject of conservation arouses an almost religious-like fervour and with over 220 persons registered, it was the largest of the symposia held by the Society so far. During the two days it became evident that there were some sharp contrasts between the have's (Europe and North America) and the have nots (everywhere else). To generalize, for the first group the number of species is low, the information base on them is good and there are many scientists active. The opposite is true for much of the remainder of the world particularly South America and southeast Asia (Brown, Sutton and Collins). This can be depicted graphically below.

Another division emerged. One insect order above all others, the butterflies, received most attention, and for good reason. They have aesthetic appeal, are easily sampled by visual methods, are relatively well known taxonomically and biologically, and adults are not cryptic. It must be remembered though, that as indicator species and for monitoring they do have serious drawbacks. They are herbivorous and so are tied to their host plant yet they are also relatively mobile between host plants and they do not fulfil two requirements for a good indicator group, that of being

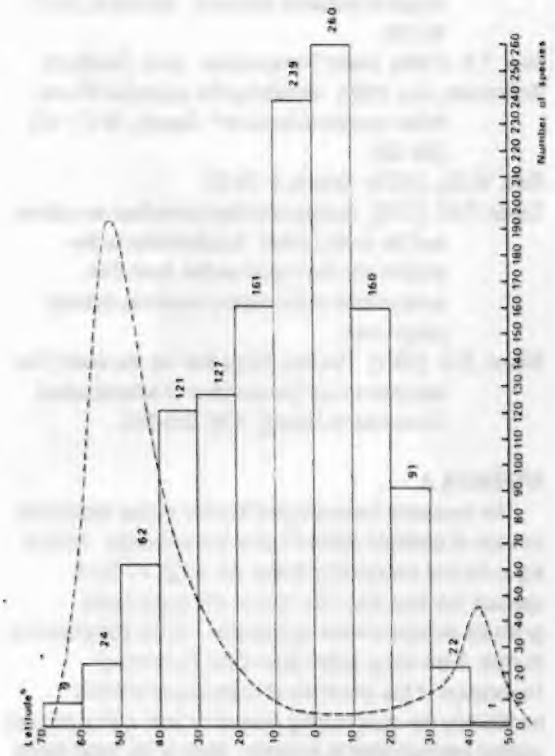


Figure: Diversity of papilionid butterfly species at different latitudinal zones north and south of the equator shown as histogram bars. (Figure from Collins and Morris *Threatened swallowtail butterflies of the world*). Superimposed upon this is the relative number of taxonomists in each zone (dashed line).

ecologically diverse and closely integrated with processes in ecosystems.

An important point made by several speakers was that in natural ecosystems, there is not correlation between centres of diversity and those of endemism and these factors may be inversely related. This appears to be the case in Brazilian, Bornean and Tasmanian forests (Brown, Sutton and Collins and Greenslade and New). Different reserves are needed to cater for the conservation of these two parts of the fauna. A classification of invertebrate habitats would be of considerable value in those parts of the world where the information base is still too poor to allow inventory work to be the basis of assessing priorities for reservation. There would still be a need to give a priority ranking to habitats, a

rather easier matter than that of compiling complete inventories.

There were contrary opinions expressed as to whether we have sufficient information to lobby now for more action on insect conservation or whether we should wait until more has been collected. However the groundswell opinion led by Mark Collins was that there is sufficient data for immediate action and I would also strongly support this position.

The conference finished on a note of optimism with entomologists fired with enthusiasm to take action for conservation rather than just talk about it, but no solutions emerged as to how to halt rainforest clearing in Brazil and southeast Asia, one of, if not the, most urgent problem in insect conservation today.

An opportunity was taken before the symposium to hold a one day workshop of IUCN Invertebrate Specialist Group Chairmen and various other invertebrate conservationists associated with IUCN activities. The aim was to devise a strategy for invertebrate conservation within the framework of IUCN where recently it has not been given a high priority.

Twenty-four people attended the meeting and the five invertebrate specialist groups (Ants, Lepidoptera, cave insects, Odonata and Molluscs) were represented. Members of other organizations, OPIE (France) and Balfour Brown Club (water beetles) were also present. A working paper was circulated beforehand to provide a background for discussion. The meeting was chaired by Simon Stuart, on the staff of IUCN in Geneva, who described the structure of IUCN, the relationship of IUCN with the WWF and function of WMC and the status of invertebrate conservation within these organizations. The specialist group chairmen then reported on committee activities which included a number of plans for publications or endangered species. It was decided to establish an invertebrate task force with the object of liaising more closely with the IUCN executive. Some time was spent discussing fund raising and suitable projects for research. The need to determine critical sites (habitats) and find species for action and recovery plans was emphasized.

PENELOPE GREENSLADE

New Publications

BOOK REVIEWS

Primitive Ghost Moths, Morphology and taxonomy of the Australian genus *Fraus* Walker (Lepidoptera: Hepialidae *s. lat.*) by Ebbe S. Nielsen and Niels P. Kristensen. July 1989. *Monographs on Australian Lepidoptera* Vol. 1, 206 pp, 435 figs. CSIRO Publications, 314 Albert Street, Melbourne, Vic. 3002. Price A$60 (including p. & p.)

This scholarly volume is indeed worthy of its role in launching CSIRO's new series *Monographs on Australian Lepidoptera*. If the high standard of content and presentation are indicative of other volumes to follow Australian lepidopterists will benefit enormously.

The book is divided into 5 chapters as follows: 1. Morphology (100 pages); 2. Biology (5 pages); 3. Diversity and distribution (7 pages); 4. Phylogeny (4 pages); and 5. Taxonomic revision of the genus *Fraus* Walker (81 pages). The large Morphology chapter contains a wealth of information on both the external and internal structures of the adults as well as comprehensive treatments of the larvae, pupae and eggs. It is illustrated by a remarkable 222 quality text-figures.

This is the first ever review of the genus *Fraus*. 25 species are recognised, 16 of them new. The comprehensive taxonomic chapter describes the adults of each species (including a detailed analysis of both male and female genitalia), and provides a Diagnosis discussing differences from other similar species; other headings are Phenology and bionomics, Distribution, Material examined and, sometimes, Remarks. Figures illustrate all adults and genitalia (one species has 11 separate figures) and distribution maps plot all known localities. Keys are provided to males and females; these I found quite workable.

The volume is well bound and well designed. My only misgiving is the skimpy page margin - the text sometimes reaches to within 5 mm of the page edge. This of course is basically a matter of aesthetics and does not detract from the worth of the volume. I consider the price reasonable, especially for those who subscribe to the Series thus

qualifying for a 25% discount. The scientific implications of this first volume are far-reaching. It should be in the library of all serious moth enthusiasts. Several other volumes in the series are already in preparation covering a wide range of topics. I strongly believe that every academic library concerned with entomology should subscribe to the whole Series.

M.S. MOULDS
Research Associate
Australian Museum

Insect Delight. A Life's Journey. John Evans. 1989. 224 pp, illustrated by Faith Evans. Price $16.50 plus $3.50 postage and packaging. Available from Brolga Press, PO Box 335, Curtin, ACT 2605.

John Evans' book is indeed a delight, enhanced with charming drawings by his wife to whom the book is dedicated. It recounts with gentle irony the shaping and progress of the author's unusual and fulfilling career and tells of the interesting people, insects, institutions and places he has encountered.

Born in 1906 in India, he grew up in England. Determined on graduation from Cambridge to avoid dull jobs and living in the tropics, but keen to see something of the world, he joined an enterprise that aimed to catch sharks in Australian waters and sell shagreen, but on reaching Sydney found that the firm had folded.

Fortunate encounters led in 1927 to a studentship with the newly formed Division of Entomology of CSIR (now CSIRO). Always fascinated with insects, John learned much about them during a year at the Cawthron Institute Nelson, New Zealand from the Chief Entomologist, R.J. Tillyard and his staff. While at Cawthron, he decided to make leafhoppers his long-term field of study.

In 1928 he travelled with Tillyard (newly appointed Chief of CSIR Division of Entomology) through USA to UK, and besides meeting entomologists, attended spiritualist seances with Tillyard.

In the UK he worked at the parasite laboratory of the Imperial Bureau of Entomology, rearing cultures of *Trichogramma*. He also studied leafhoppers at the British Museum (Natural History) and began publication on them.

John returned to Australian in 1929 to set up cultures of *Trichogramma* in Canberra, then commenced a study of

apple thrips in South Australian orchards.

In 1934 he married Faith Tillyard who shares John's and her father's enthusiasm for natural history and love of insects. Her participation and support have enhanced John's career.

Having worked for four years on two insects, he sought a wider field and in 1935 was appointed Government Entomologist of Tasmania. While there, he and Faith developed their fascination with moss-bugs (Peloridiidae). By 1942 he saw no further challenges in his Tasmanian job and answered an advertisement by the Commonwealth Institute of Entomology for an entomologist with wide experience. Duly appointed, he reached war-torn London in 1944. The job proved frustrating but it provided an opportunity to work on the BM(NH) collection of leafhoppers and John commenced study of their inter-relationships on a worldwide bases.

The Cawthron Institute

In 1948 he was appointed Biologist in charge of the scientific activities of the new Infestation Control Division of the Ministry of Agriculture and Fisheries. This was concerned not only with insects, mites and rodents but also with 'land pests', mammals and birds harmful to agriculture. He had a large staff scattered through the country but found administrators were responsible for 'policy' and usually unwilling to accept a scientific viewpoint. When, in a reorganisation of the Ministry, his post was to be downgraded, he sought another challenge and found it in 1954 as Director of the Australian Museum. "Attempting to put the Australian Museum on its feet would provide the sort of challenge I wanted to show what I could achieve if freed from restrictions imposed by administrators". When he had won over the Museum's administrators, he applied the lessons on how and how not to handle staff learned in his years in UK and lifted the Museum out of its doldrums to become a vigorous scientific and educational institution with a new wing, new laboratories and displays and a happy working atmosphere. He also found time to continue his leafhopper studies, before retiring at age 60 to devote himself to them full-time.

This book can be enjoyed by all entomologists and may inspire some young ones to seek their own challenges. Outstanding features are the fascinating vignettes, not only of that great entomologist, R.J. Tillyard, but also of John's own father, Brigadier W.H. Evans, an amateur who became world authority on skipper butterflies. We can be grateful to John Evans for sharing with us his insect delight.

E.N. MARKS
Brisbane

MOZZIE MONOGRAPH NOW COMPLETE

Over the last few years there have been periodic references in this Bulletin to the on-going toils of those working on the "Monster Mossie Monograph", more correctly known as *The Culicidae of the Australasian Region*.. This is a series of volumes, commenced in 1980, which summarises all known information on the mosquitoes of the Australasian Region. The geographic area covered includes eastern Indonesia, New Guinea, Australia, New Zealand and the islands of the southern Pacific, including Hawaii.

We are delighted to record that the final volume in the 12-volume set has now appeared. The authorship has comprised a group of dedicated people centred on a core of personnel initially at the ill-fated School of Public Health and Tropical Medicine at the University of Sydney and who later retired or dispersed to other institutions after the disbandment of the SPTHM.

The full set of volumes, which totals 2796 pages, and which will remain the standard reference on the regions mosquitoes for many years to come, is now available for purchase for $50 Australian plus postage. Send orders to:

Dr J.H.Bryan,
Tropical Entomology Programme,
Department of Entomology,
University of Queensland,
ST LUCIA. QLD. 4067.

ADVANCE BOOK NOTICE

The Tettigoniidae. Biology, Systematics and Evolution. 528 pp, 20-30 full colour plates. This book is edited by Australian orthopterists and commemorates the retirement of leading British biologist and taxonomist, David R. Ragge, from the British Museum. It brings together 18 papers by a variety of authors on many aspects of the Tettigoniidae, the family which occupied most of David Ragge's research career. It will be available shortly at $60 plus $8 postage and a pre-publication order form is available from Crawford House Press, PO Box 143, Bathurst, NSW 2795.

NEW BOOKS

Entomologists of Manitoba and *Entomologists of Alberta*, compiled by the Heritage Committee of the Entomological Society of Canada, are immediately available. They comprise the biographical profiles (and photographs, if available) of all entomologists and naturalists who have worked, or are still working in each of these two provinces. Each publication may be obtained for four dollars Canadian ($4.00), to cover the costs of handling and mailing. Send your request and remittances to: *Dr P.W. Riegert, Department of Biology, University of Regina, Regina, Saskatchewan, Canada. S4S 0A2.*

The Australia Prize

The Australia Prize is an annual international award given by the Government of the Commonwealth of Australia for an outstanding specific achievement in a selected area of science promoting human welfare. In this context, science encompasses natural and technological sciences, engineering and mathematics.

The area for the Prize will be nominated annually. In 1990, the award will be made for achievements in the field of Biological Sciences related to Agriculture or the Environment. The Prize will be $A250,000, not taxed in Australia, together with an inscribed medal.

The Australia Prize Committee consists of the President of the Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering, alternating annually in the Chair, two additional Fellows of each Academy nominated annually by the Presidents, and other distinguished Australians

CONDITIONS OF AWARD

The Prize may be awarded to an individual or awarded jointly to up to four persons who will share the prize money in equal parts. Persons who have already received a prestigious international award for the nominated achievement will not normally be considered for the award of the Australia Prize.

Awardees will normally be expected to attend the Prize-giving ceremony in Canberra and to participate in associated events. Air fares to, within and from Australia and all reasonable expenses arising from the award program will be provided.

A posthumous award will be made only in the event of the death of a prize winner between the selection process and the award ceremony.

Written confidential nominations will be sought from appropriate learned and professional bodies and from individuals. Self-nominations will not be considered. The Committee reserves the right to seek further nominations or to refuse the nomination of any person.

Nominations must be submitted in English on the 'Australia Prize Nomination Form'. Nominations are to be signed by the nominator and two supporters familiar with the nominated achievement.

The Committee, in consultation with a Special Advisory Panel established annually by the Committee on the basis of expertise relevant to the area of the particular award and chaired by the Chairperson of the Committee, will recommend the recipient of the Australia Prize to the Government of the Commonwealth of Australia.

All material considered by the Committee and the Panel, and their deliberations thereon, will remain confidential. The Committee reserves the right not to recommend an award in any one year.

All decisions taken and recommendations made by the Australia Prize Committee shall be binding and final and no correspondence will be entered into as regards such matters. No contractual or other relationship shall arise as between the Committee, its members or the Commonwealth and any person nominated for the Australia Prize.

NOMINATION FORMS

These are available from Society President, Tim New, at his address inside the front cover of this "Myrmecia".

SMITHSONIAN RESEARCH FELLOWSHIPS IN HISTORY, ART, AND SCIENCE

The Smithsonian Institution announces its research fellowships for 1990-1991 in the fields of History and Science and Technology, Social and Cultural History, History of Art, Anthropology, Biological Sciences, Earth Sciences, and Materials Analysis.

Smithsonian Fellowships are awarded to support independent research in residence at the Smithsonian in association with the research staff and using the Institution's resources. Predoctoral and postdoctoral fellowship appointments for six to twelve months, and graduate student appointments for ten weeks are awarded. Proposals for research in the following areas of Biological Science may be made: Animal behaviour and pathology; ecology; environmental studies; evolutionary biology; marine biology; natural history; palaeobiology; systematics; and tropical biology.

Applications are due January 15, 1990. Stipends supporting these awards are: *$25,000* per year plus allowances for senior postdoctoral fellows; *$20,000* per year plus allowances for postdoctoral fellows; *$12,000* per year plus allowances for predoctoral fellows; and *$3,000* for graduate students for the ten-week tenure period. Awards are based on merit. For more information and application forms, please write: Smithsonian Institution, Office of Fellowships and Grants, 7300 L'Enfant Plaza, Washington, DC 20560.

Coming Events

12th International Congress of Arachnology

To be held at the Queensland Museum in July 1992. Further details will be announced here as they come to hand.

59th ANZAAS Congress

To be held in Hobart on February 14-16, 1990. Theme is "Global Change and the Southwest Pacific". Contact: Dr Peter E. Doe, Department of Civil and Mechanical Engineering, University of Tasmania, Hobart, TAS 7000.

5th International Congress of Ecology

To be held in Yokohama Japan, on August 23-30, 1990. Contact: Prof Yiuti Cho, c/- Prof Akira Miyawaki, Institute of Environmental Science and Technology, Yokohama National University, Yokohama 240, Japan.

Systematics and Biogeography of the Austral Biota Ninth Meeting of the Willi Hennig Society Canberra, 24-27 August 1990

The first announcement for this meeting will be available shortly. It provides a tentative list of speakers in the sessions which include: (1) Molecular biology and systematics. (2) The use of phylogenetic information in ecological and evolutionary studies. (3) Austral flora and fauna: systematics and evolution. (4) Austral biogeography. (5) Coevolution of plant and animal groups. (6) Phylogenetic computing software. (7) Poster session.

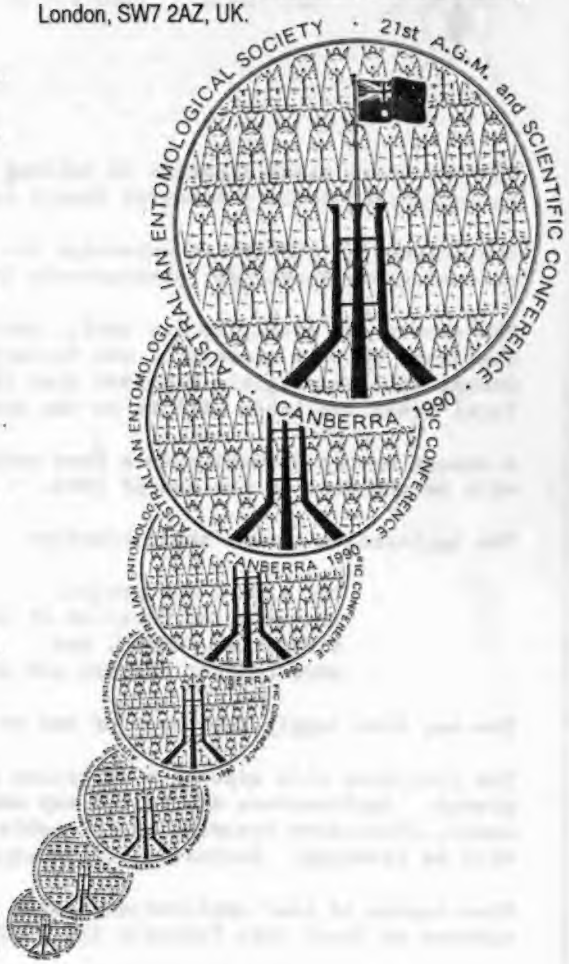
For more information write to Dr. Ebbe S. Nielsen, CSIRO Division of Entomology, GPO Box 1700, Canberra, ACT 2601, Australia.

21st AGM and Conference of Australian Entomological Society

To be held in Canberra June 30-July 4, 1990. Enrolment form with full details will be included with the February issue of MYRMECIA.

Advanced Methods in Medical and Veterinary Vector Control

An intensive residential post-experience course to be held at Imperial College's research laboratories at Silwood Park on the outskirts of London. Organized jointly by the Department of Pure and Applied Biology and the Department of Medical Parasitology. January 29-March 9, 1990. All inclusive fee £3,800. Enquiries re course content to Professor Elizabeth Canning, Imperial College, Silwood Park, Ascot, Berkshire, SL5 7PY, UK. Enrolment enquiries to Director of Continuing Education, Sherfield Building, London, SW7 2AZ, UK.



AUSTRALIAN ENTOMOLOGICAL SOCIETY

RESEARCH GRANTS

CALL FOR APPLICANTS

The Executive takes pleasure in calling for applications for the Australian Entomological Society Research Grants to be awarded in 1990.

The scheme is intended to encourage the advancement and dissemination of entomological knowledge, particularly in relation to the Australian fauna.

The grants are primarily for small, short-term projects and will be available only to members of the Society of at least 12 months standing. Groups will be eligible provided that the primary researcher is a member. Total funds available will be in the order of $4000.

A report to the Executive in a form suitable for publication in *Myrmecia* will be required by the end of 1991.

The application should state clearly:

- the aim of the project
- the expected duration of the project
- a detailed budget, and
- your contact address and telephone number.

You may also supply the names of one or two referees if you wish.

The President will appoint a selection panel to allocate and administer the grants. Applications may be for any amount up to $4000 but remember that small, short-term projects which enable a diverse range of work to be funded will be favoured. Successful applicants for 1990 will be notified in May.

Five copies of your application should reach the Secretary at the following address no later than February 12, 1990.

Mr J.D. Sandow
ICI Crop Care
12 Dampier Road
WELSHPOOL WA 6106

AUSTRALIAN ENTOMOLOGICAL SOCIETY

STUDENT AWARD 1990

- This award is open to students who have not yet gained their PhD by June 30, 1990.
- Entrants need not be members of the Society.
- Submissions should be in the form of a scientific paper of 5000 words or less, on entomological research.
- Entries will be judged by a panel of senior entomologists appointed by the President of the Society.
- The winner will receive $250 cash and will be invited to present the winning paper at the AES Scientific Conference held in Canberra from June 30 to July 4, 1990. The Society will provide free conference registration, accomodation in Canberra and a return air fare from the winner's home State.
- Please indicate your intention to submit an entry by completing the form overleaf and returning it to the Secretary by March 2, 1990.
- Three copies of the paper, one and a half or double spaced, should be in the hands of the Secretary at the following address by the end of April, 1990.

Mr J.D. Sandow
Secretary, AES
ICI Crop Care
12 Dampier Road
WELSHPOOL WA 6106

Australian Entomological Society Inc.

STUDENT AWARD COMPETITION 1990

This is to advise that I intend to submit a paper on original entomological research for the Society's Student Award Competition in 1990.

My name is: .....

My postal address is: .....

.....

My paper will deal with (tentative title acceptable):

.....

.....

I am (or was) a student at (name of institution).

.....

My Supervisor's name is (or was):

.....

My current professional qualifications are:

.....

I will forward 3 copies of my entry to reach you by April 30, 1990 and acknowledge that no paper can be accepted for judging which is not received by that date.

Signed:.....

Date:.....

Return completed form to: Mr J.Sandow
Secretary, Aust.Ent.Soc.
c/-ICI Crop Care
12 Dampier Road
Welshpool W.A. 6106

CALL FOR NOMINATIONS FOR THE 1990 IAN MACKERRAS MEDAL FOR EXCELLENCE IN ENTOMOLOGY

The Executive invites nominations of Society members for the fourth award of the Ian Mackerras Medal in 1990.

Those wishing to nominate a member for award of the medal should bear in mind that:

(a) Only financial members of the Society who will be under the age of 50 years on 31 December 1989 are eligible for nomination.

(b) A candidate must be nominated by not fewer than two financial members of the Society.

(c) The proposers of a candidate shall provide the Society's Secretary, not later than March 16, 1990, with a detailed statement, including the candidate's name, date of birth, academic distinctions, relevant appointments and membership of Societies, together with a list of his or her more important publications. In addition, a statement should be made, in not more than 500 words, why the candidate merits this distinction in entomology.

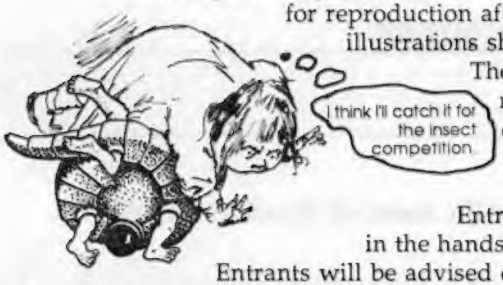
(d) A Selection Panel for award of the medal will be appointed and convened by the President, and members of that panel shall themselves not be elegible for nomination, nor may they be signatories to a nomination.

(e) Should the panel recommend to the Executive that an award be made, the name of the recipient will be announced at the 21st AGM in Canberra in June/July 1990 and, if possible, the medal will be presented to the recipient at that meeting.

Previous recipients of the Mackerras Medal are Dr J.A.L.Watson (1984), Dr R.W.Sutherst (1986) and Dr T.R.New (1988).

Biological Illustration Competition 1990

The Society invites entries to this competition in the form of taxonomic illustrations of insects. Anyone other than a person employed as a biological illustrator or entomologist may enter upto three (3) examples of their original work. Published illustrations will not be accepted.



Entries must be either a black and white or coloured whole body view of an insect (preferably identified) using any medium or technique, but suitable for reproduction after reduction by 50 per cent.The mounted illustrations should not exceed 21 x 30 cm (approx. A4). The winning black and white entries will be reproduced at the society's 21st AGM and conference in June/July 1990. The display will be open to the public.

Entries (carefully packaged if posted) must be in the hands of the Secretary by the end of April 1990. Entrants will be advised of the outcome of the competition by mid June and original artwork will be returned to the entrants by the end of July.

A condition of entry is that the Society shall have the right to display selected works in public as outlined above and to reproduce the illustrations with appropriate acknowledgement on items such as greeting cards which it sells.

Prizes for both black/white and colour: 1st prize $300, 2nd prize $100

Entry Form

NAME _____

ADDRESS _____

_____

scientific name of insect (if known)

_____

Send this form with your entries to:
Mr J. D. Sandow
I.C.I.Crop Care
12 Dampier Road
Welshpool
W.A. 6106

CSIRO JOURNALS SUBSCRIPTION FORM

Cut along line (or photocopy form)

CONCESSION RATES FOR MEMBERS

Members are reminded that membership of the Australian Entomological Society entitles them to subscriptions to Journals published by CSIRO at concessional rates. If you wish to subscribe to one or more of the Journals, please tick the appropriate boxes on the form enclosed in this issue and forward it to the Treasurer with the correct money by 30 November. Cheques should be made payable to the Australian Entomological Society.

One of the reasons for Societies being offered concessional prices for their members is that it reduces paperwork (and therefore costs) if CSIRO receives one large order and cheque rather than many small ones. For this reason, please ensure that your order is sent to the Treasurer on time. While CSIRO have generously allowed concession prices to apply even on late individual orders this year, it does negate the advantages to them of providing bulk concessions, and they may not allow it in future.

Members are also reminded that back issues of all Journals are available from CSIRO Publications Sales at a cost of $30.00 each.

This Society acts only as an agent for the CSIRO Publications Sales Office. We are not involved in setting prices, publishing the Journals or sending them out to subscribers. While the Treasurer is happy to pass on complaints and problems to the appropriate people, members who have problems with non-receipt of Journals will probably have the problems addressed quicker if they communicate directly with CSIRO Editorial Services Unit. The person to contact is:

Miss Mirella Cirillo
Manager - CSIRO, Publications
PO Box 89
EAST MELBOURNE VIC 3002

Journal	Normal Price	Concession Price	
Australian Journal of Agricultural Research	$145	$ 70	☐
Australian Journal of Botany	$140	$ 70	☐
Australian Journal of Chemistry	$350	$170	☐
Australian Journal of Marine & Freshwater Research	$145	$ 70	
Australian Journal of Physics	$195	$ 70	☐
Australian Journal of Plant Physiology	$145	$ 70	
Australian Journal of Soils Research	$130	$ 50	☐
Australian Journal of Zoology	$145	$ 70	☐
Australian Systematic Botany	$100	$ 50	☐
Australian Wildlife Research	$130	$ 50	☐
Invertebrate Taxonomy	$220	$110	☐
Reproduction, Fertility and Development	$120	$ 60	☐
Australian Journal of Experimental Agriculture	$140	$ 70	☐

Name: .....

Address: .....

..... Postcode: .....

RETURN COMPLETED FORM TO:

Ms Anne Hill
Entomology Branch Department of Agriculture
Baron-Hay Court SOUTH PERTH WA 6151

Australian Entomological Society Inc.

NOMINATION FOR MEMBERSHIP

We, the undersigned

Proposer _____ Seconder _____

being financial members of the Society, propose:

(Dr/Mr/Mrs/Miss/Ms) _____

(BLOCK LETTERS)

Address _____

_____ Postcode _____

for membership of the Australian Entomological Society Inc.

Degrees/diplomas etc. _____

Occupation/position _____

Brief list of interests, experience and entomological publications (if any): _____

_____

_____

_____

I accept nomination and undertake if elected to abide by the rules of the Society, and to pay annual subscriptions by the due date.

Signature _____ Date _____

To be returned:

Mr J.D. Sandow, Secretary
Entomology Branch
Department of Agriculture
3 Baron-Hay Court
SOUTH PERTH W.A. 6151

Cut along line (or photocopy form)

21st AGM AND SCIENTIFIC CONFERENCE CANBERRA 30 JUNE - 5 JULY, 1990

SYMPOSIA

Insect/Plant Interactions
The invited speakers will address the areas of host plant resistance, induced defenses, secondary plant compounds, and coevolution. Contributed papers are invited in these and any other areas relating to insect/plant interactions. Contact Roger Farrow, 062-465701.

The Role of Molecular Biology in Modern Entomology
The topics include insect transformation, vectors for change, strategic genes, insecticide resistance, molecular pathology, and species identification. Contact Joanne Daly and Marion Healy, 062-465349.

Evolutionary Ecology
Contributed papers are invited in the areas of life history tactics, optimal foraging, host and habitat selection, optimal behaviour sequences and decision making, sociality, sex ratio, sexual selection and mating. Contact Paul Wellings 062-465680.

SPECIAL WORKSHOP
Entomological Systematics in Australia: Future Directions
Invited speakers will review recent developments, summarize methods and applications and outline questions to be addressed during the workshop. Workshop groups, organised along systematic lines, will discuss future directions and priorities, and report to the plenum. Contact Barry Richardson 062-741050, John Lawrence 062-465047 or Ebbe Nielsen 062-465493.

TRIBUTE TO AMATEUR ENTOMOLOGISTS
To acknowledge the importance of amateurs to the Society and to entomology in general, arrangements have been made for registrants to tour the Australian National Insect Collection and view some of the valuable collections donated by amateur entomologists.

CONTRIBUTED SESSIONS
Applied taxonomy, post harvest entomology, *Heliothis* biology, aquatic entomology, applied entomology and general entomology.

SPECIAL INTEREST GROUPS
Entomology education in the future, contact Robert Spooner-Hart 045-701229; Are rainforest insects diverse? contact Penny Greenslade 062-465063; Insect physiology, contact Peter Smith 062-465178.

SOCIAL EVENTS
An evening at the National Science and Technology Centre A reception at Parliament House
Annual Dinner Excursion to temperate rainforest

REGIONAL COUNCILLORS

Queensland
Mr D.H.Foley
Entomology Department
University of Qiueensland
St Lucia Qld 4067
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